

CONTRACT NO: DM00373 PROJECT: 41665.14B



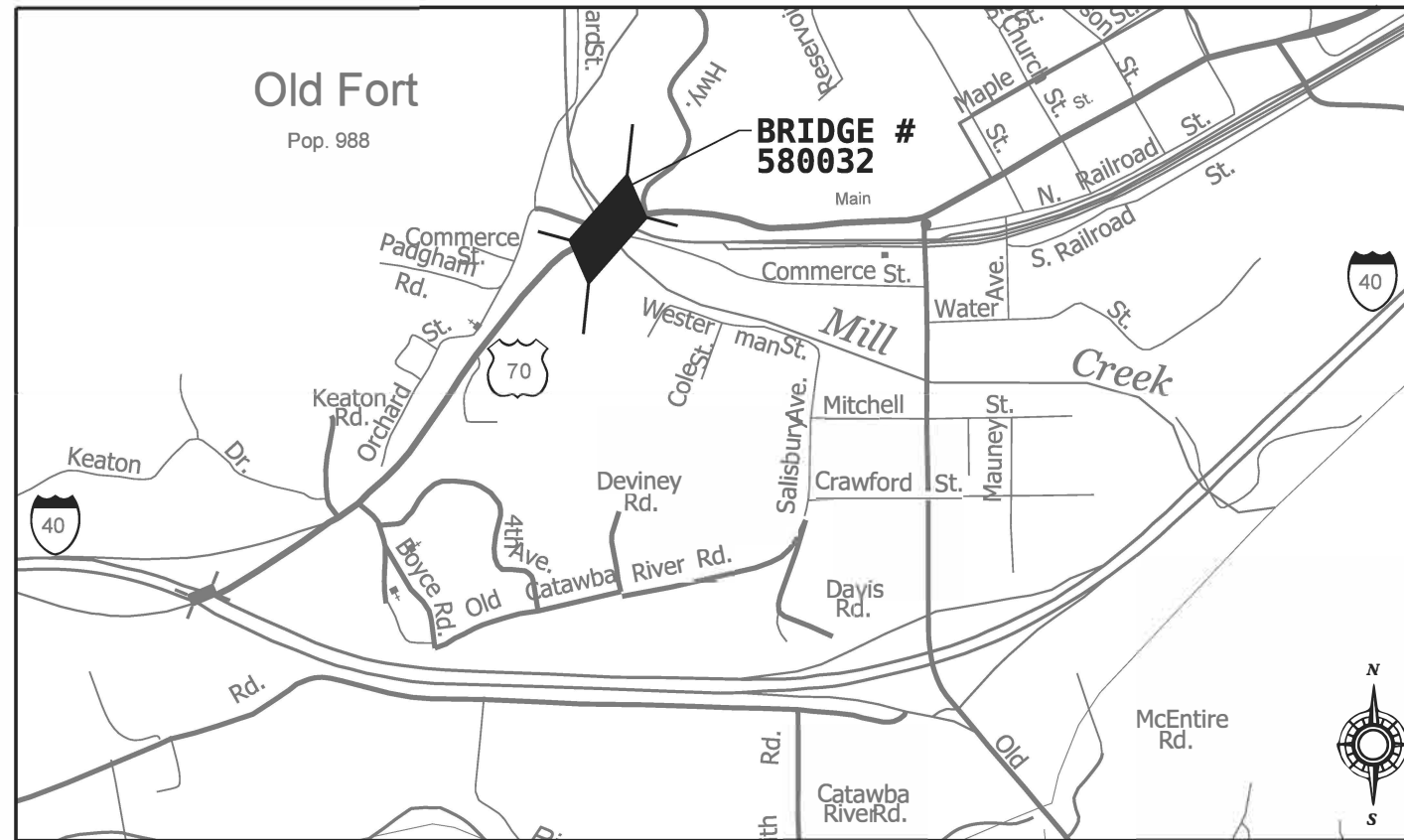
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MCDOWELL COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	41665.14B	1	36
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
41665.14B		P.E.	
41665.14B	—	CONST.	

LOCATION: BRIDGE #580032 ON US70 OVER SR1116, SOUTHERN RAILROAD AND MILL CREEK

TYPE OF WORK: BRIDGE PRESERVATION – LATEX MODIFIED CONCRETE OVERLAY, JOINT REPLACEMENT, BRIDGE JACKING, SUBSTRUCTURE REPAIRS, REINFORCED CONCRETE GIRDER REPAIRS, AND EPOXY COATING.



DESIGN DATA

BRIDGE #580032 – ADT 2015 – 3900

PROJECT LENGTH

BRIDGE #580032 – 0.06 MILE

Prepared In the Office of:
DIVISION OF HIGHWAYS
STRUCTURES MANAGEMENT UNIT
1000 BIRCH RIDGE DR.
RALEIGH, N.C. 27610

2018 STANDARD SPECIFICATIONS

DECEMBER 6, 2023
LETTING DATE

ADAM A. COLE, P.E.
PROJECT ENGINEER

NICHOLAS A. PIERCE, P.E.
PROJECT DESIGN ENGINEER

NOTES

GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 12/9/2021.

BRIDGE ORIENTATION CONFORMS TO THE EXISTING BRIDGE PLANS/ROUTINE INSPECTION.

SCOPE OF WORK

REMOVE ASPHALT WEARING SURFACE AND PARTIALLY REMOVE TOP OF BRIDGE DECK CONCRETE BY SCARIFICATION AND HYDRO-DEMOLITION.

OVERLAY PREPARED TOP OF BRIDGE DECK WITH LATEX MODIFIED CONCRETE (LMC).

REMOVE EXISTING JOINT MATERIAL AND INSTALL FOAM JOINTS.

GROOVE LMC BRIDGE DECK.

MILL AND REPAVE ASPHALT APPROACH ROADWAYS.

JACK BRIDGE.

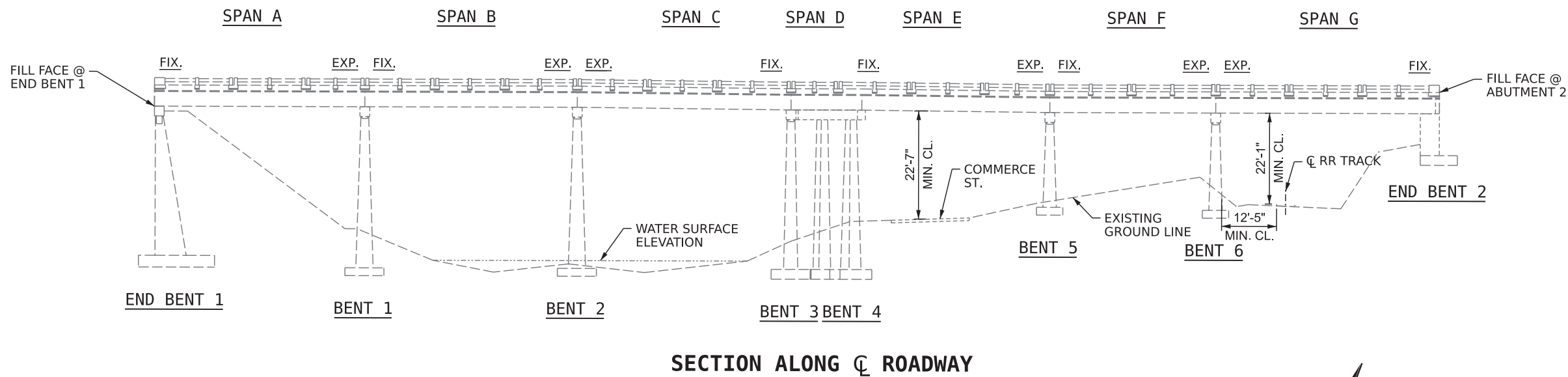
REPAIR CONCRETE DECK GIRDERS.

CLEAN AND EPOXY COAT EXISTING REINFORCED CONCRETE DECK GIRDER ENDS.

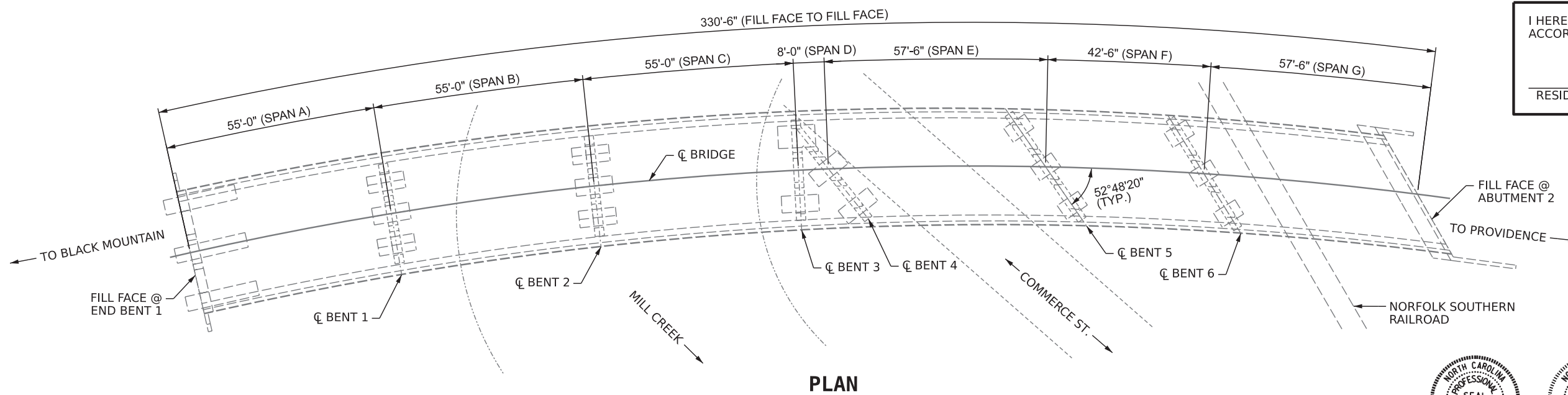
REMOVE UNSOUND CONCRETE AND PROPERLY PREPARE EXISTING END BENT AND BENT AREAS FOR SHOTCRETE AND CONCRETE REPAIRS.

PROPERLY PREPARE SPALLED AREAS IN EXISTING END BENT AND BENTS AND PERFORM SHOTCRETE AND CONCRETE REPAIRS.

REMOVE DEBRIS FROM TOP OF EXISTING END BENT AND BENT CAPS AND APPLY EPOXY COATING.



SECTION ALONG CL ROADWAY



PLAN

I HEREBY CERTIFY THAT THIS STRTURE WAS REHABILITATED ACCORDING TO THESE PLANS OR AS NOTED HEREIN.

RESIDENT ENGINEER _____ DATE _____

PROJECT NO. **41665.14B**

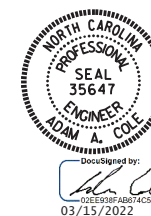
MCDOWELL COUNTY

BRIDGE NO. **580032**

SHEET 1 OF 2 NSRR MILE POST 111.42

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE ON US70 OVER
SR1116 (COMMERCE ST.)
NS RAILROAD AND
MILL CREEK



DocuSigned by:
Adam A. Cole
03/15/2022

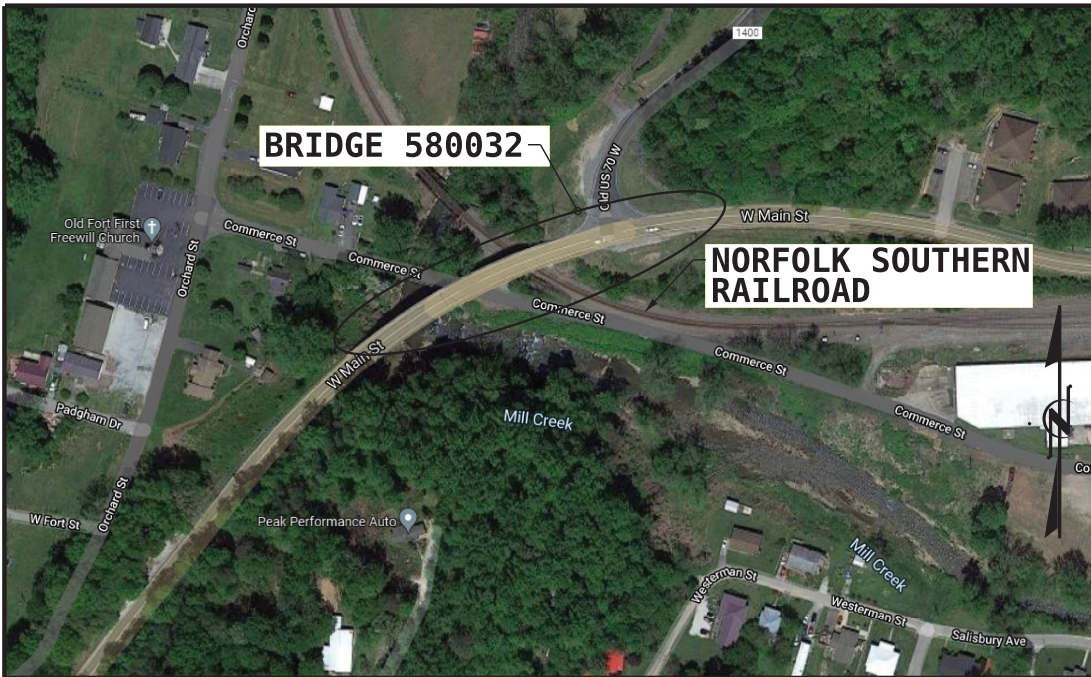
DocuSigned by:
Nicholas Pierce
03/15/2022

DRAWN BY : D.A. CANTRELL DATE : 12/2021
CHECKED BY : N.A. PIERCE DATE : 01/2022
DESIGN ENGINEER OF RECORD: N.A. PIERCE DATE : 01/2022

3/15/2022
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REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			34



BRIDGE 580032

NORFOLK SOUTHERN RAILROAD

BRIDGE 580032 LOCATION SKETCH

BRIDGE COORDINATES

BRIDGE No.	LATITUDE	LONGITUDE
580032	35°-37'-43.94"	82°-11'-13.71"

NOTES

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THERE ARE HIGH VOLTAGE POWER AND OTHER UTILITY LINES NEAR THE PROPOSED WORK AREA.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

INFORMATION INDICATED ON THE LOCATION SKETCH SHALL BE CONSIDERED GENERAL INFORMATION ONLY. THE CONTRACTOR SHALL CONFIRM, THROUGH OTHER SOURCES, SPECIFIC INFORMATION REGARDING BRIDGES, ROADWAYS, UTILITIES, THE SURROUNDING AREA, AND ANY OTHER ASPECTS THAT MAY BE NECESSARY TO PERFORM AND COMPLETE THE PROJECT.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISIONS.

FOR LATEX MODIFIED CONCRETE AND PLACING AND FINISHING OF LATEX MODIFIED CONCRETE, SEE SPECIAL PROVISIONS.

FOR HYDRO-DEMOLITION, SCARIFYING BRIDGE DECK, CLASS II AND CLASS III SURFACE PREPARATION, SEE LMC OVERLAY SURFACE PREPARATION SPECIAL PROVISION.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

FOR CONCRETE GIRDER REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING CONCRETE GIRDER ENDS, SEE SPECIAL PROVISIONS.

FOR TYPE II BRIDGE JACKING, SEE SPECIAL PROVISIONS

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT DUE TO THE NATURE OF PRESERVATION PROJECTS, THE EXTENT OF WORK CANNOT ALWAYS BE ACCURATELY DETERMINED PRIOR TO COMMENCEMENT OF WORK. REPAIR LOCATIONS AND ESTIMATES OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS.

EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM THE BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.

THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT FOR ANY DELAYS OF ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN WHAT IS SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.

WORK ON THE BRIDGE(S) SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL BELOW, EXCEPT WHERE THE CONTRACTOR'S PLAN USE PLATFORMS, NETS, SCREENS OR OTHER PROTECTIVE DEVICES TO CATCH THE MATERIAL. THE CONTRACTOR SHALL SUBMIT PLANS FOR CONSTRUCTION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS AND THE PROJECT SPECIAL PROVISIONS.

THE RAILROAD TRACK TOP OF RAIL TO BOTTOM OF BEAM VERTICAL CLEARANCES ON THE PLANS ARE FROM THE BEST INFORMATION AVAILABLE. PRIOR TO BEGINNING BRIDGE CONSTRUCTION, VERIFY THE TOP OF RAIL TO BOTTOM OF BEAM CLEARANCES AND REPORT ANY VARIATIONS TO THE ENGINEER. ANY PLAN REVISIONS NECESSARY TO ACHIEVE THE REQUIRED MINIMUM CLEARANCE WILL BE PROVIDED BY THE DEPARTMENT.

THE CONTRACTOR SHALL PERFORM ALL WORK WITH CARE SO THAT THE EXISTING STRUCTURE WHICH IS TO REMAIN IN PLACE WILL NOT BE DAMAGED. IF THE CONTRACTOR DAMAGES ANY PART OF THE EXISTING STRUCTURE WHICH IS TO REMAIN IN PLACE, THE DAMAGED AREA SHALL BE REPAIRED OR REPLACED IN A MANNER SATISFACTORY TO THE ENGINEER AT NO ADDITIONAL COST TO THE DEPARTMENT.

AT THE TIME OF PREPARATION OF THESE PLANS, IT WAS NOT ANTICIPATED THAT THE FOLLOWING ITEM(S) LISTED WOULD BE REQUIRED. HOWEVER, IT MAY BE DETERMINED IN THE FIELD THAT THE FOLLOWING ITEM(S) LISTED, OR OTHER WORK WILL BE NECESSARY TO PROPERLY COMPLETE THE INTENDED BRIDGE PRESERVATION/REHABILITATION WORK. THE CONTRACTOR SHALL BE PREPARED TO PERFORM SUCH WORK IN A TIMELY MANNER, AS DETERMINED IN THE FIELD. SUCH WORK SHALL BE CONSIDERED EXTRA WORK AND SHALL BE ADDRESSED AS PER ARTICLE 104-7 OF THE STANDARD SPECIFICATIONS. PROJECT SPECIAL PROVISIONS THAT OUTLINE REQUIREMENTS FOR THESE POTENTIAL ADDITIONAL WORK ITEMS HAVE BEEN PROVIDED IN THE PROJECT DOCUMENTS, BUT NO QUANTITIES HAVE BEEN LISTED. ACTUAL PAY ITEMS, QUANTITIES, AND COSTS WILL BE ESTABLISHED, AS REQUIRED, IF EXTRA WORK IS ENCOUNTERED. UNANTICIPATED ITEMS:

ANY DAMAGE TO EXISTING REINFORCING STEEL, DURING CONTRACTOR'S OPERATIONS, SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AND PERFORMED AT NO ADDITIONAL COST TO THE DEPARTMENT.

FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLANS.

ITEM DESCRIPTION	UNIT
TYPE I BRIDGE JACKING	EACH
EPOXY RESIN INJECTION	LIN.FT.

PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL A COMPLETE SEQUENCE OF TASKS FOR EACH OPERATION AFFECTING THE BRIDGE SURFACE AND/OR TRAFFIC.

TOTAL BILL OF MATERIAL

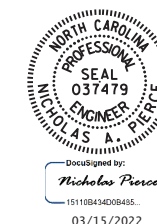
BRIDGE No.	INCIDENTAL MILLING	ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B	ASPHALT BINDER PLANT MIX	GROOVING BRIDGE FLOORS	CLASS II SURFACE PREPARATION	CLASS III SURFACE PREPARATION	LATEX MODIFIED CONCRETE OVERLAY	PLACING & FINISHING OF LATEX MODIFIED CONCRETE	CONCRETE REPAIRS	SHOTCRETE REPAIRS
	SQ.YDS.	TON	TON	SQ.FT.	SQ.YDS.	SQ.YDS.	CU.YDS.	SQ.YDS.	CU.FT.	CU.FT.
580032	667.0	60.0	5.0	8125.5	9.7	36.6	71.4	1028.2	100.2	807.5
TOTAL	667.0	60.0	5.0	8125.5	9.7	36.6	71.4	1028.2	100.2	807.5

TOTAL BILL OF MATERIAL CONTINUED

BRIDGE No.	VOLUMETRIC MIXER	FOAM JOINT SEALS FOR PRESERVATION	ELASTOMERIC CONCRETE FOR PRESERVATION	REPAIRS TO CONCRETE GIRDERS	BRIDGE JOINT DEMOLITION	EPOXY COATING	EPOXY COATING CONCRETE GIRDER ENDS	HYDRO-DEMOLITION OF BRIDGE DECK	SCARIFYING BRIDGE DECK	TYPE II BRIDGE JACKING BRIDGE #
	LUMP SUM	LIN.FT.	CU.FT.	CU.FT.	SQ.FT.	SQ.FT.	SQ.FT.	SQ.YDS.	SQ.YDS.	EACH
580032	LUMP SUM	200.5	50.4	158.5	336	979	258	1028.2	1028.2	1
TOTAL	LUMP SUM	200.5	50.4	158.5	336	979	258	1028.2	1028.2	1

PROJECT NO. **41665.14B**
MCDOWELL COUNTY
 BRIDGE NO. **580032**

SHEET 2 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON US70 OVER
 SR1116 (COMMERCE ST.),
 NS RAILROAD AND
 MILL CREEK

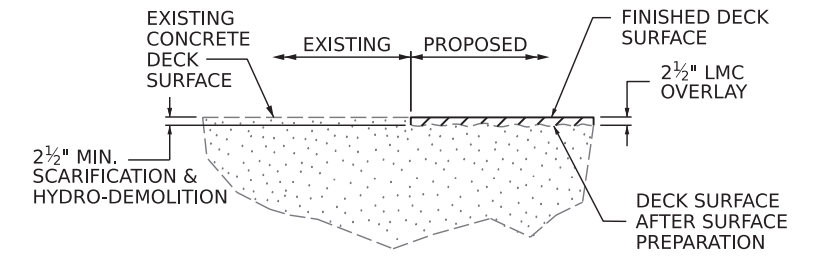
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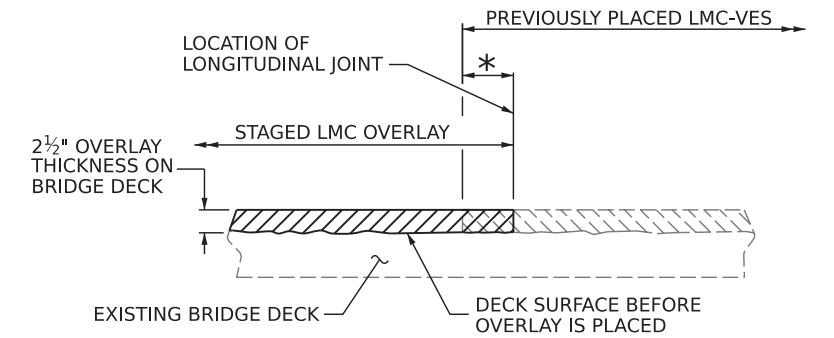
DRAWN BY : N.A. PIERCE DATE : 12/2021
 CHECKED BY : B.L. GREEN DATE : 02/2022
 DESIGN ENGINEER OF RECORD : N.A. PIERCE DATE : 01/2022

NOTES

SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SYSTEM AND SURFACE PREPARATION.

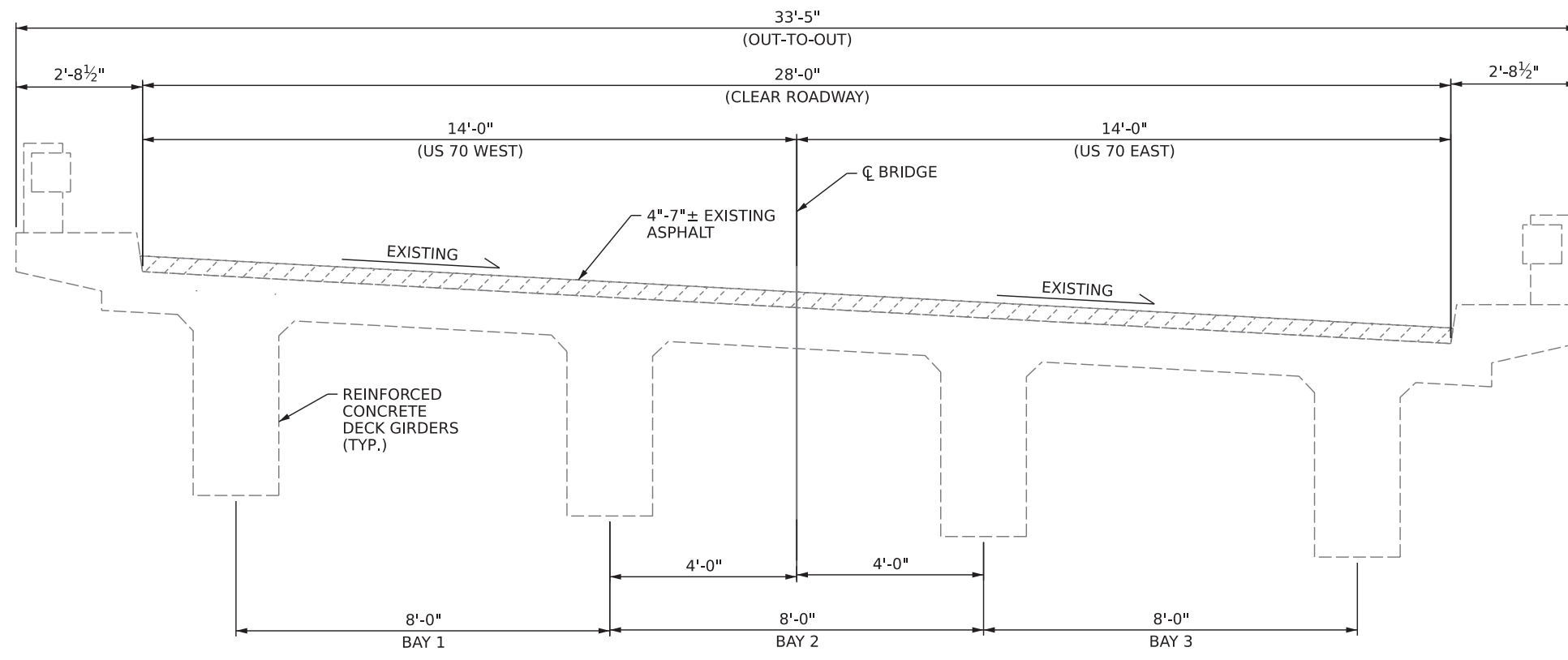


DETAIL OF LMC OVERLAY

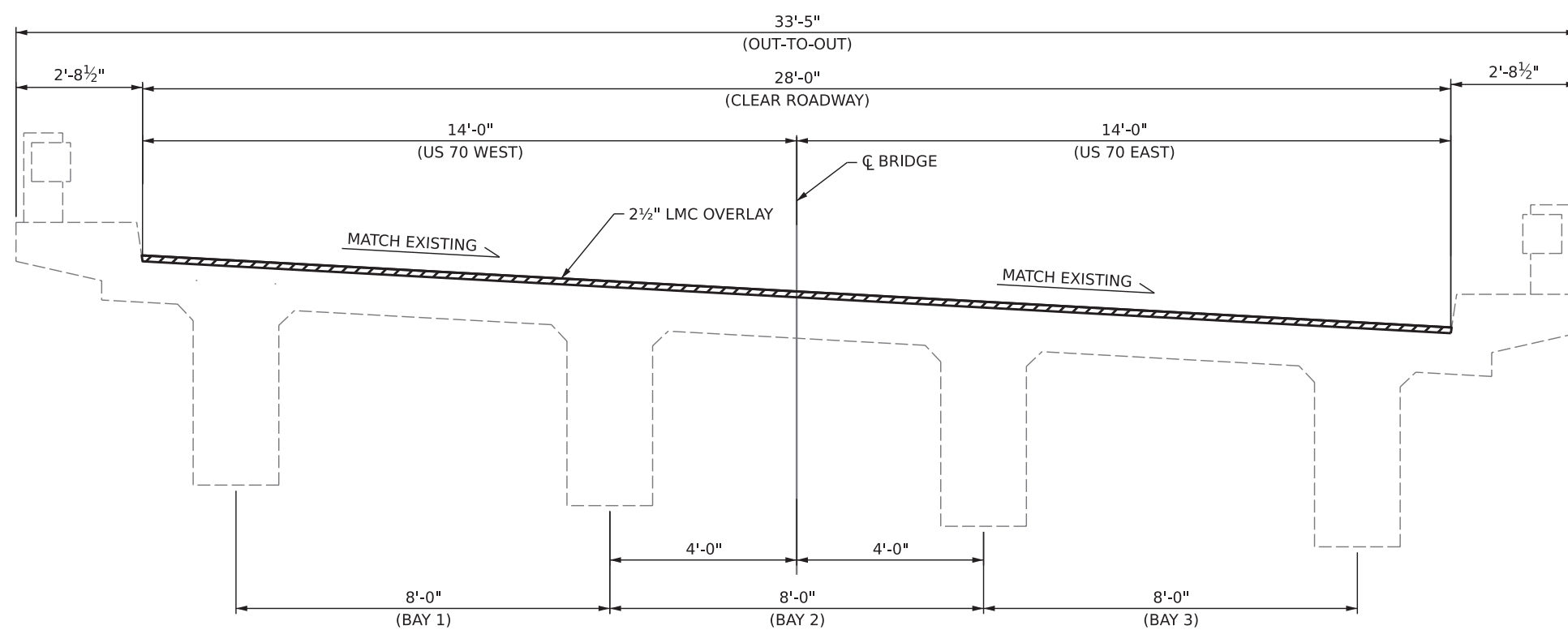


SECTION THRU DECK STAGED LMC OVERLAY JOINT
(AS NEEDED)

* 4" OVERLAP BETWEEN OVERLAYS

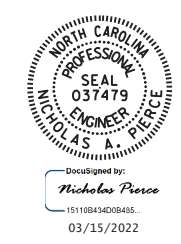


EXISTING TYPICAL SECTION



PROPOSED TYPICAL SECTION

PROJECT NO. **41665.14B**
MCDOWELL COUNTY
BRIDGE NO. **580032**



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL SECTION

REVISIONS						SHEET NO. S1-03 TOTAL SHEETS 34
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1			3			DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
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DRAWN BY : N.A. PIERCE DATE : 12/2021
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DESIGN ENGINEER OF RECORD : N.A. PIERCE DATE : 01/2022

AS-BUILT REPAIR QUANTITY TABLE

DECK SURFACE REPAIR - SPAN A

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	171.1 SQ.YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	171.1 SQ.YDS.	
CLASS II SURFACE PREPARATION	-	
CLASS III SURFACE PREPARATION	-	
BRIDGE JOINT DEMOLITION	28.0 SQ.FT.	
CONCRETE FOR DECK REPAIR	-	
LATEX MODIFIED CONCRETE OVERLAY	11.9 CU.YDS.	
PLACING AND FINISHING LMC OVERLAY	171.1 SQ.YDS.	
GROOVING BRIDGE FLOORS	1363.0 SQ.FT.	




NOTES

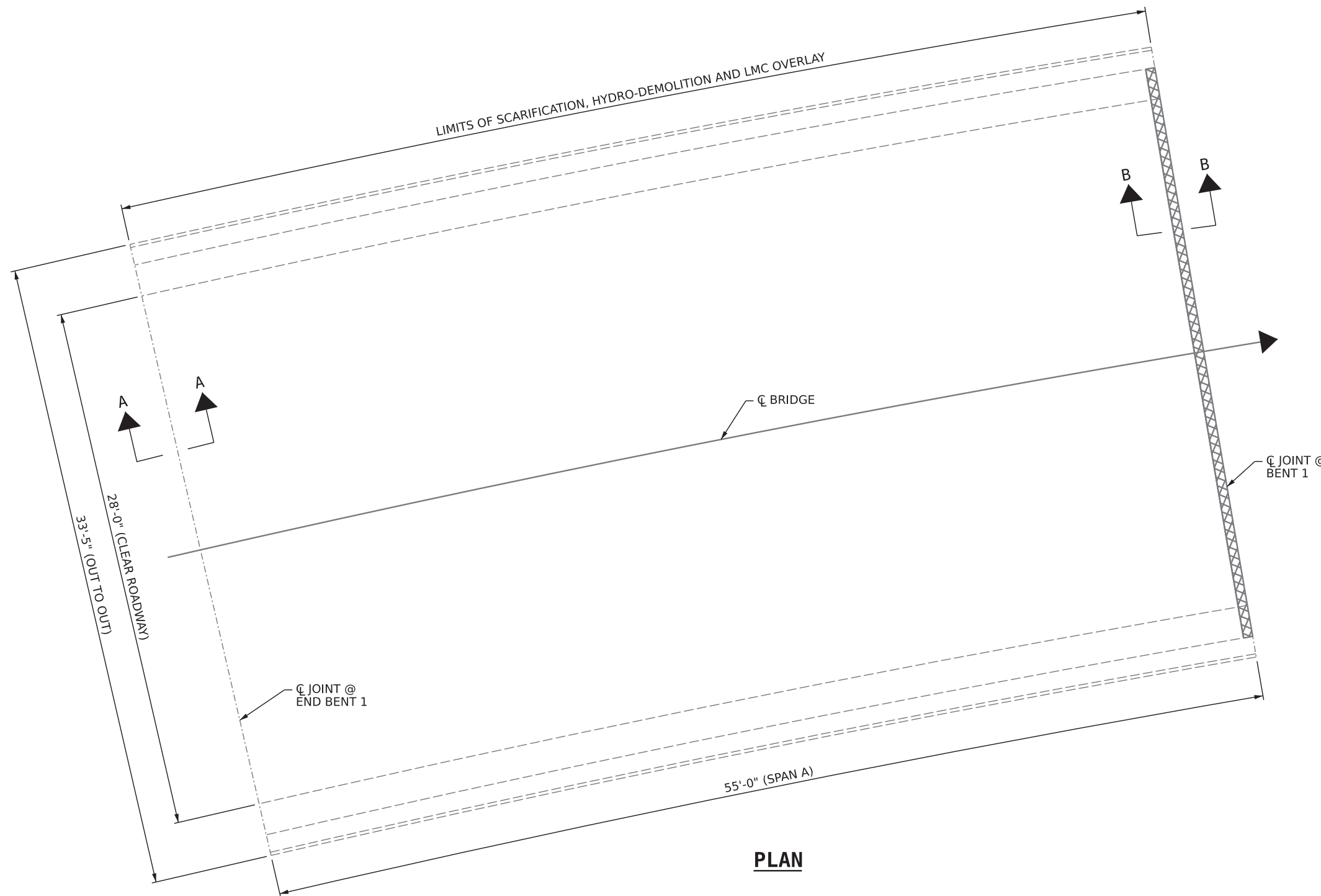
DECK SURFACE REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR AFTER REMOVAL OF UNSOUND CONCRETE. (MIN. 2" CLEAR TO SAWCUT). SEE CONCRETE FOR DECK REPAIR SPECIAL PROVISION.

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR "CONCRETE FOR DECK REPAIR", SEE SPECIAL PROVISIONS.

FOR SECTION A-A AND B-B, SEE "JOINT DETAILS" SHEET.

-  CLASS II SURFACE PREPARATION
-  CLASS III SURFACE PREPARATION
-  BRIDGE JOINT DEMOLITION



PLAN

PROJECT NO. **41665.14B**
MCDOWELL COUNTY
 BRIDGE NO. **580032**

SHEET 1 OF 6



Designed by:
Nicholas Pierce
 15110434000485.
 03/15/2022

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

DECK SURFACE REPAIR SPAN A

REVISIONS						SHEET NO.
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1			3			S1-04
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 CHECKED BY : N.A. PIERCE DATE : 01/2022
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AS-BUILT REPAIR QUANTITY TABLE

DECK SURFACE REPAIR - SPAN B

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	171.1 SQ.YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	171.1 SQ.YDS.	
CLASS II SURFACE PREPARATION	4.6 SQ.YDS.	
CLASS III SURFACE PREPARATION	12.4 SQ.YDS.	
BRIDGE JOINT DEMOLITION	56.0 SQ.FT.	
CONCRETE FOR DECK REPAIR	60.7 CU.FT.	
LATEX MODIFIED CONCRETE OVERLAY	11.9 SQ.YDS.	
PLACING AND FINISHING LMC OVERLAY	171.1 SQ.YDS.	
GROOVING BRIDGE FLOORS	1350 SQ.FT.	




NOTES

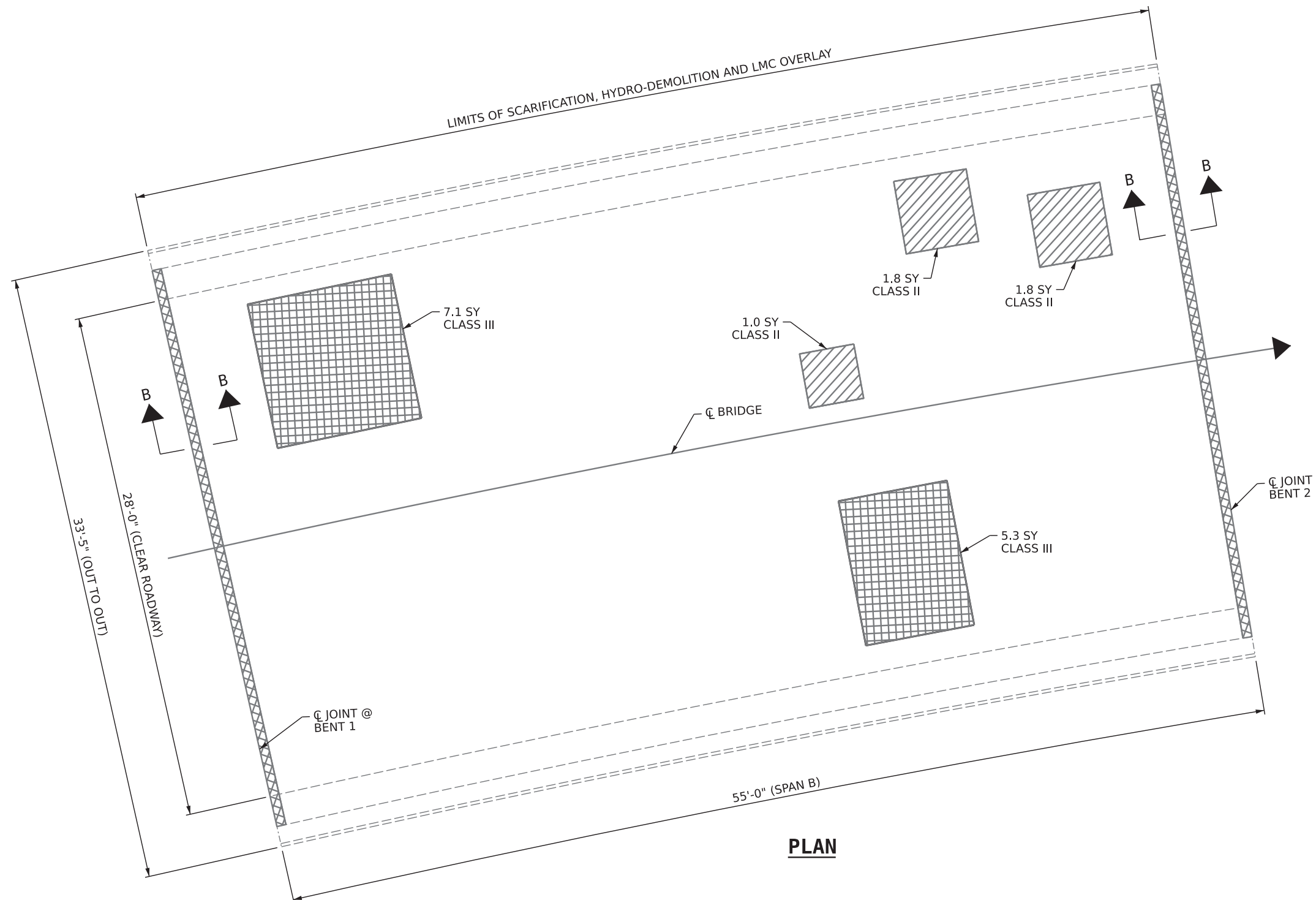
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-  CLASS II SURFACE PREPARATION
-  CLASS III SURFACE PREPARATION
-  BRIDGE JOINT DEMOLITION



PLAN

PROJECT NO. **41665.14B**
MCDOWELL COUNTY
 BRIDGE NO. **580032**

SHEET 2 OF 6



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

DECK SURFACE REPAIR SPAN B

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S1-05
2			4			TOTAL SHEETS 34

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DRAWN BY : **D.A. CANTRELL** DATE : **1/2022**
 CHECKED BY : **N.A. PIERCE** DATE : **01/2022**
 DESIGN ENGINEER OF RECORD : **N.A. PIERCE** DATE : **01/2022**

3/15/2022
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 napierce

AS-BUILT REPAIR QUANTITY TABLE

DECK SURFACE REPAIR - SPAN C

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	171.1 SQ.YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	171.1 SQ.YDS.	
CLASS II SURFACE PREPARATION	-	
CLASS III SURFACE PREPARATION	8.0 SQ. YDS.	
BRIDGE JOINT DEMOLITION	56.0 SQ. FT.	
CONCRETE FOR DECK REPAIR	39.0 CU. FT.	
LATEX MODIFIED CONCRETE OVERLAY	11.9 CU.YDS.	
PLACING AND FINISHING LMC OVERLAY	171.1 SQ. YDS.	
GROOVING BRIDGE FLOORS	1350.0 SQ.FT.	




NOTES

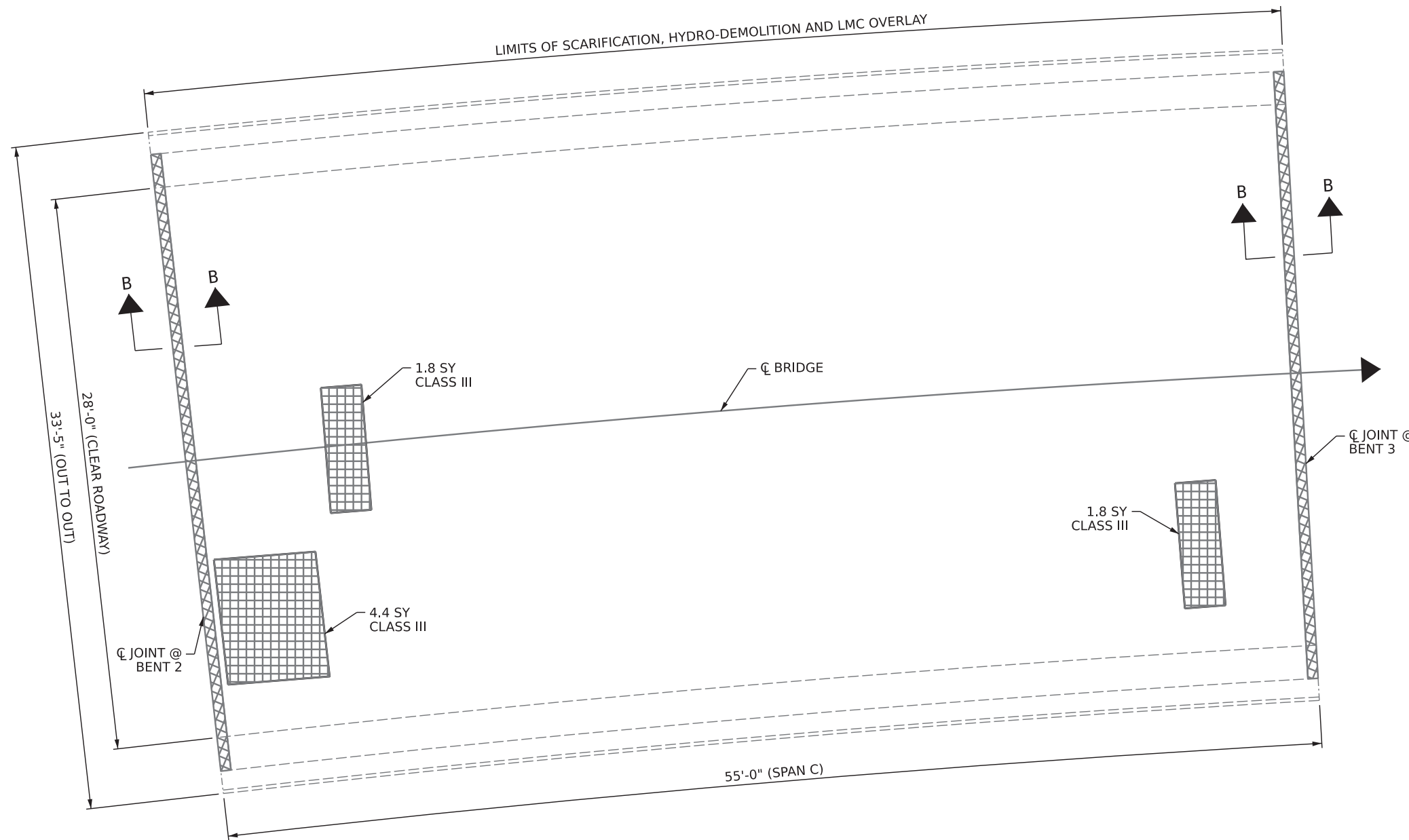
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-  CLASS II SURFACE PREPARATION
-  CLASS III SURFACE PREPARATION
-  BRIDGE JOINT DEMOLITION



PLAN

PROJECT NO. **41665.14B**

MCDOWELL COUNTY

BRIDGE NO. **580032**

SHEET 3 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DECK SURFACE REPAIR SPAN C



Designed by:
Nicholas Pierce
15110843000435
03/15/2022

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REVISIONS						SHEET NO.
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2			4			TOTAL SHEETS 34

DRAWN BY : D.A. CANTRELL DATE : 1/2022
 CHECKED BY : N.A. PIERCE DATE : 01/2022
 DESIGN ENGINEER OF RECORD: N.A. PIERCE DATE : 01/2022

AS-BUILT REPAIR QUANTITY TABLE

DECK SURFACE REPAIR - SPANS D & E

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	203.8 SQ.YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	203.8 SQ.YDS.	
CLASS II SURFACE PREPARATION	2.4 SQ.YDS.	
CLASS III SURFACE PREPARATION	4.5 SQ.YDS.	
BRIDGE JOINT DEMOLITION	84.0 SQ.FT.	
CONCRETE FOR DECK REPAIR	21.7 CU.FT.	
LATEX MODIFIED CONCRETE OVERLAY	14.1 SQ.YDS.	
PLACING AND FINISHING LMC OVERLAY	203.8 SQ.YDS.	
GROOVING BRIDGE FLOORS	1612.5 SQ.FT.	




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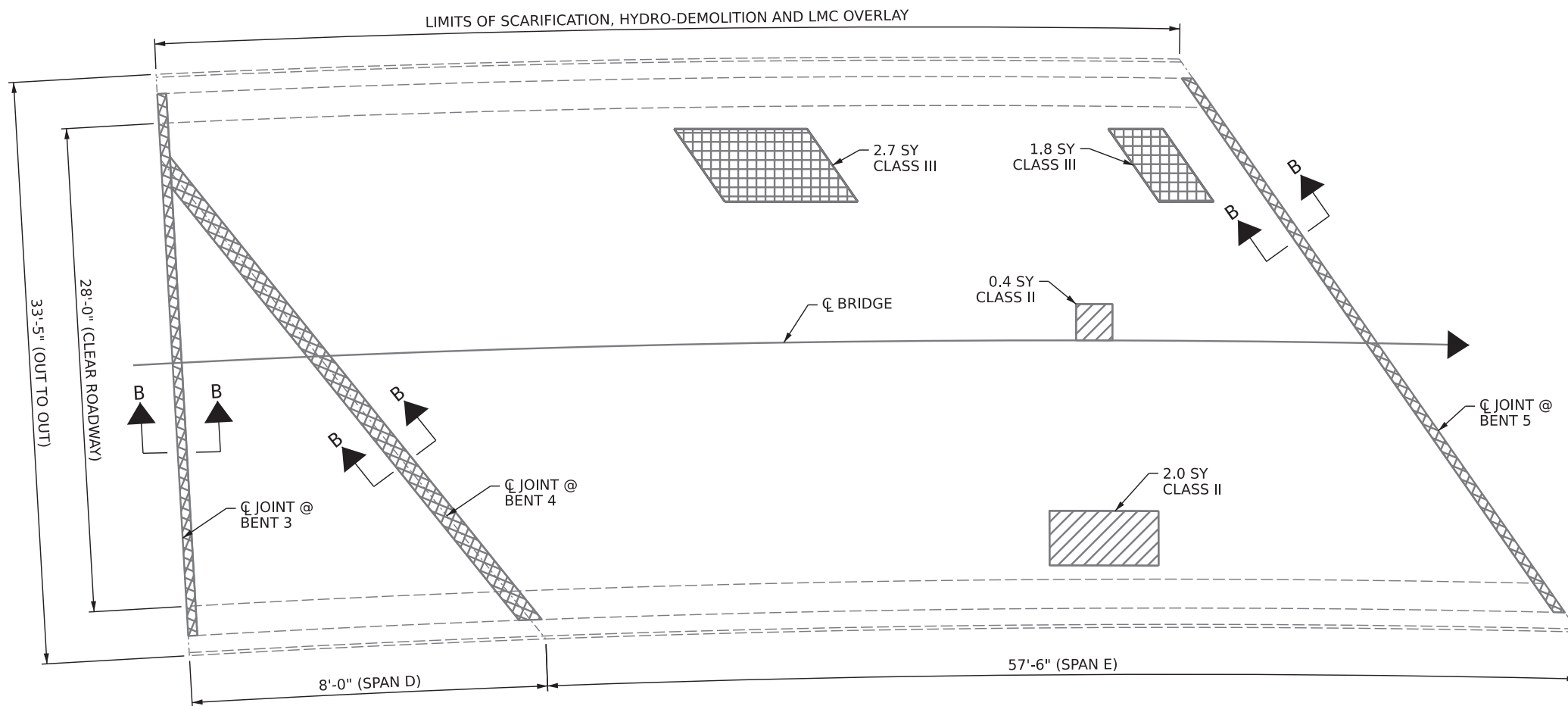
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-  CLASS II SURFACE PREPARATION
-  CLASS III SURFACE PREPARATION
-  BRIDGE JOINT DEMOLITION



PLAN

PROJECT NO. **41665.14B**
MCDOWELL COUNTY
 BRIDGE NO. **580032**

SHEET 4 OF 6



Designed by:
 Nicholas Pierce
 15110845MCD08455...
 03/15/2022

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

DECK SURFACE REPAIR SPAN D & E

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-07
1			3			TOTAL SHEETS
2			4			34

DRAWN BY : D.A. CANTRELL DATE : 1/2022
 CHECKED BY : N.A. PIERCE DATE : 01/2022
 DESIGN ENGINEER OF RECORD: N.A. PIERCE DATE : 01/2022

AS-BUILT REPAIR QUANTITY TABLE

DECK SURFACE REPAIR - SPAN F

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	132.2 SQ.YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	132.2 SQ.YDS.	
CLASS II SURFACE PREPARATION	-	
CLASS III SURFACE PREPARATION	9.7 SQ.YDS.	
BRIDGE JOINT DEMOLITION	56.0 SQ.FT.	
CONCRETE FOR DECK REPAIR	47.7 CU.FT.	
LATEX MODIFIED CONCRETE OVERLAY	9.2 CU.YDS.	
PLACING AND FINISHING LMC OVERLAY	132.2 SQ.YDS.	
GROOVING BRIDGE FLOORS	1037.5 SQ.FT.	




NOTES

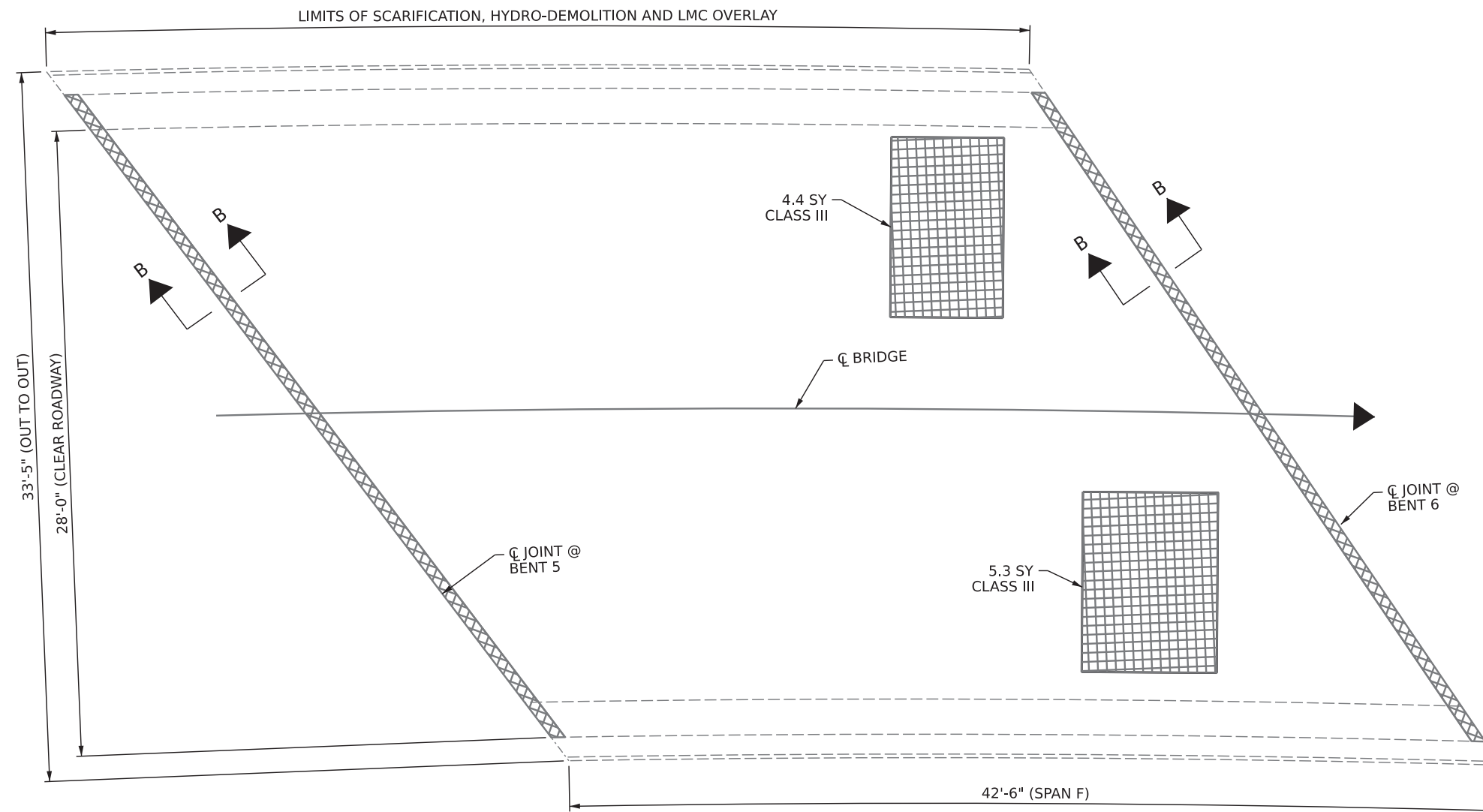
DECK SURFACE REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR AFTER REMOVAL OF UNSOUND CONCRETE. (MIN. 2" CLEAR TO SAWCUT). SEE CONCRETE FOR DECK REPAIR SPECIAL PROVISION.

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR "CONCRETE FOR DECK REPAIR", SEE SPECIAL PROVISIONS.

FOR SECTION A-A AND B-B, SEE "JOINT DETAILS" SHEET.

-  CLASS II SURFACE PREPARATION
-  CLASS III SURFACE PREPARATION
-  BRIDGE JOINT DEMOLITION



PLAN

PROJECT NO. **41665.14B**

MCDOWELL COUNTY

BRIDGE NO. **580032**

SHEET 5 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**DECK SURFACE REPAIR
SPAN F**



Designed by:
Nicholas Pierce
15110943400845.
03/15/2022

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REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			34

DRAWN BY : D.A. CANTRELL DATE : 1/2022
 CHECKED BY : N.A. PIERCE DATE : 01/2022
 DESIGN ENGINEER OF RECORD : N.A. PIERCE DATE : 01/2022

AS-BUILT REPAIR QUANTITY TABLE

DECK SURFACE REPAIR - SPAN G

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	178.9 SQ.YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	178.9 SQ.YDS.	
CLASS II SURFACE PREPARATION	2.7 SQ. YDS.	
CLASS III SURFACE PREPARATION	2.0 SQ. YDS.	
BRIDGE JOINT DEMOLITION	56.0 SQ.FT.	
CONCRETE FOR DECK REPAIR	9.75 CU.FT.	
LATEX MODIFIED CONCRETE OVERLAY	12.4 CU.YDS.	
PLACING AND FINISHING LMC OVERLAY	178.9 SQ.YDS.	
GROOVING BRIDGE FLOORS	1412.5 SQ.FT.	




NOTES

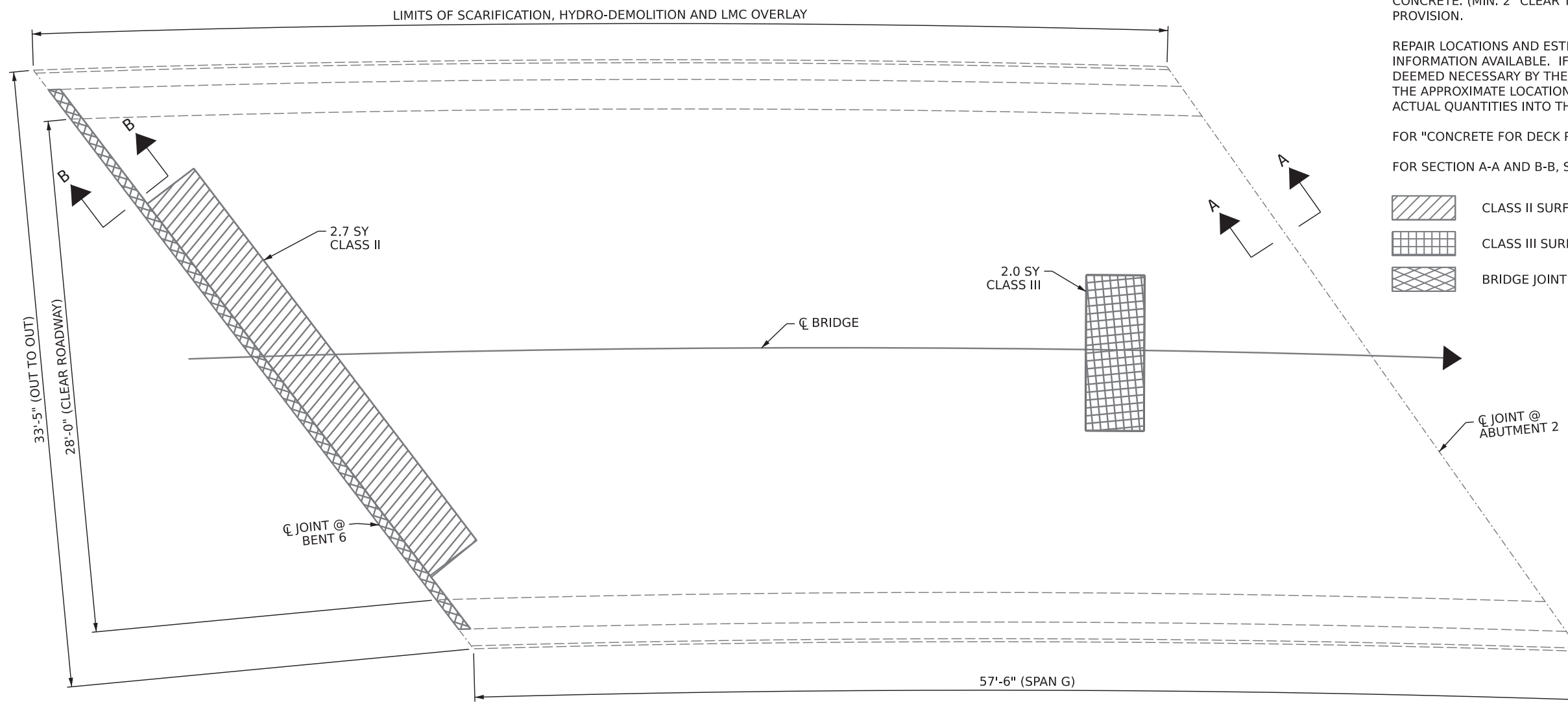
DECK SURFACE REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR AFTER REMOVAL OF UNSOUND CONCRETE. (MIN. 2" CLEAR TO SAWCUT). SEE CONCRETE FOR DECK REPAIR SPECIAL PROVISION.

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FOR "CONCRETE FOR DECK REPAIR", SEE SPECIAL PROVISIONS.

FOR SECTION A-A AND B-B, SEE "JOINT DETAILS" SHEET.

-  CLASS II SURFACE PREPARATION
-  CLASS III SURFACE PREPARATION
-  BRIDGE JOINT DEMOLITION



PLAN

PROJECT NO. **41665.14B**

MCDOWELL COUNTY

BRIDGE NO. **580032**

SHEET 6 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DECK SURFACE REPAIR SPAN G

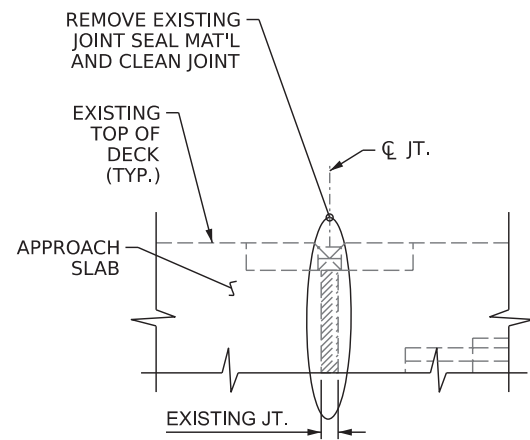


DocuSign by:
Nicholas Pierce
15118414203455
03/15/2022

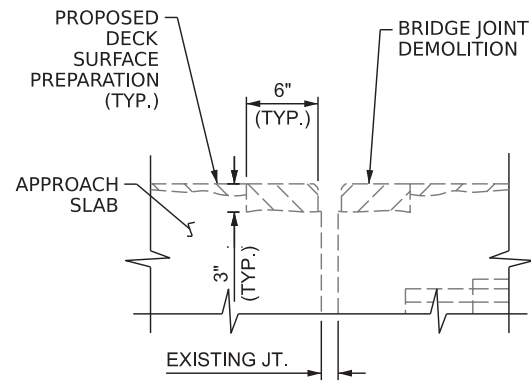
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S1-09
2			4			TOTAL SHEETS 34

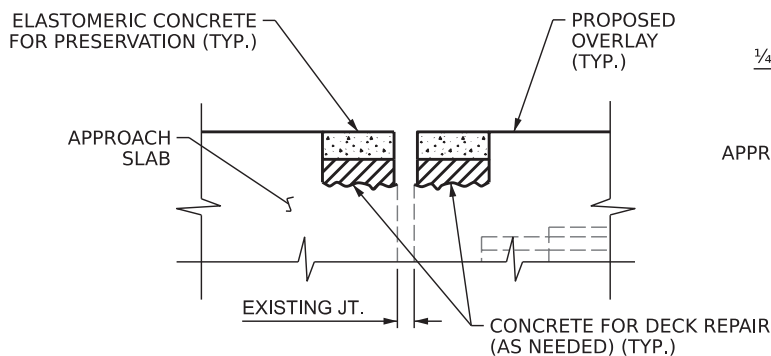
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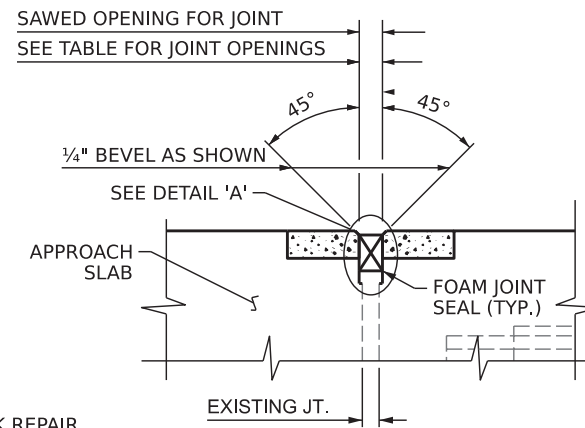
EXISTING JOINT SEAL



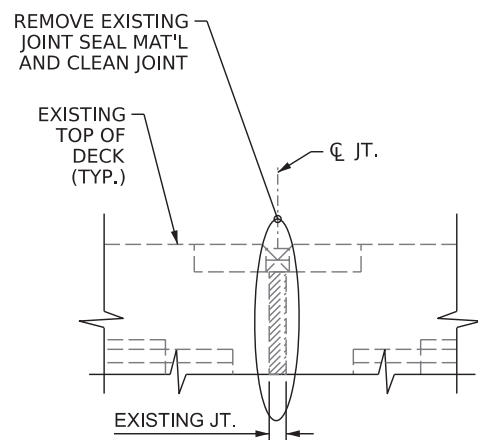
EXISTING JOINT AFTER JOINT DEMOLITION



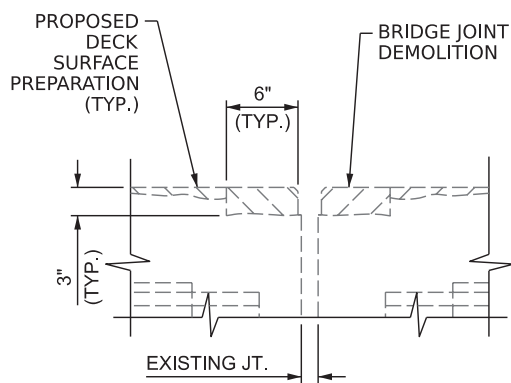
PROPOSED JOINT PRIOR TO SAWING



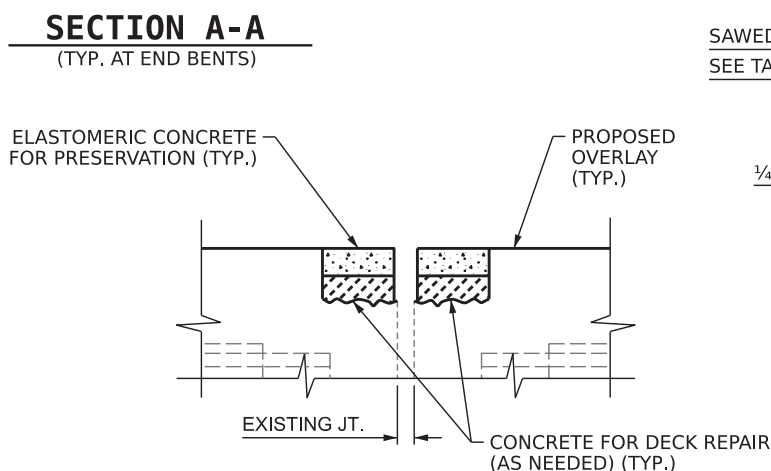
PROPOSED FOAM JOINT SEAL



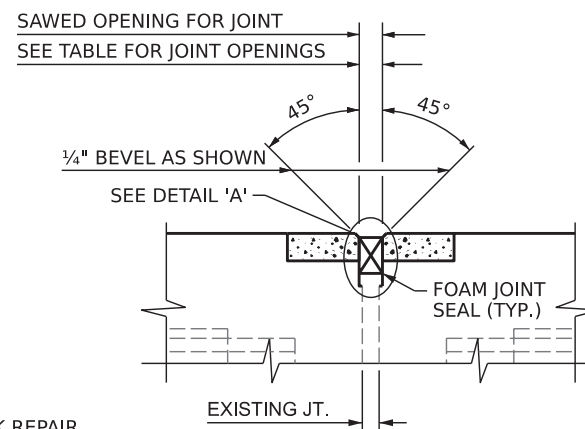
EXISTING JOINT SEAL



EXISTING JOINT AFTER JOINT DEMOLITION



PROPOSED JOINT PRIOR TO SAWING



PROPOSED FOAM JOINT SEAL

JOINT REPAIR QUANTITY TABLE		
	ESTIMATED	ACTUAL
FOAM JOINT SEALS FOR PRESERVATION	200.5	

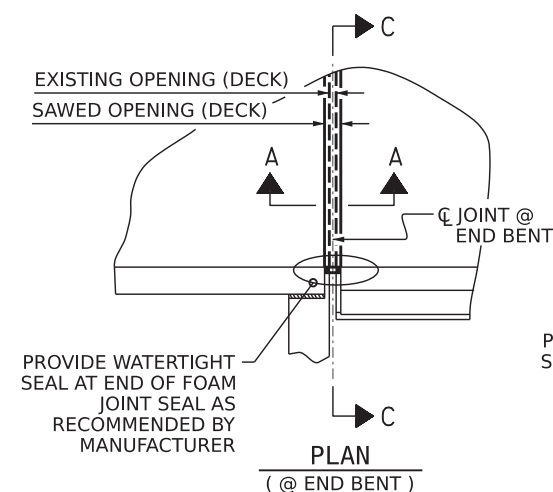
SECTION B-B
(TYP. AT BENTS)

SAWED JOINT OPENING TABLE

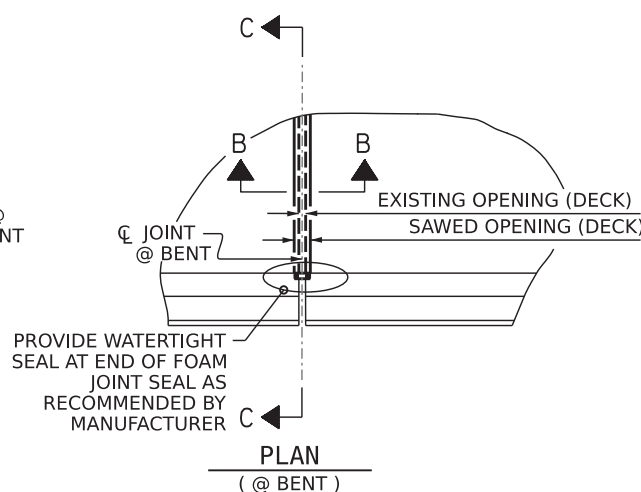
LOCATION	SAWED JT. OPENING (PERPENDICULAR TO JT.)		
	AT 45°	AT 60°	AT 90°
BENT 1-6	1 1/2"	1 9/16"	1 5/8"

ELASTOMERIC CONCRETE FOR PRESERVATION

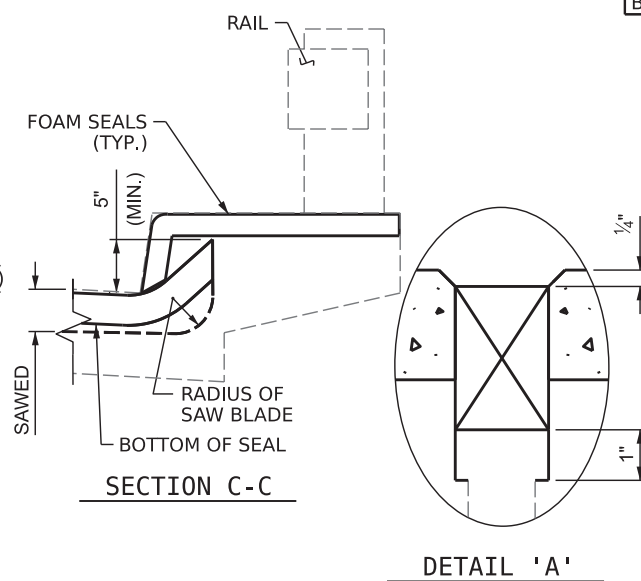
LOCATION	ESTIMATED (CU.FT.)	ACTUAL (CU.FT.)
BENT 1	8.4	
BENT 2	8.4	
BENT 3	8.4	
BENT 4	8.4	
BENT 5	8.4	
BENT 6	8.4	



PLAN
(@ END BENT)



PLAN
(@ BENT)



SECTION C-C
DETAIL 'A'

NOTES

FINAL JOINT SEALS SHALL NOT BE INSTALLED UNTIL THE OVERLAY OR SEALANT WORK IS COMPLETE.

THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING JOINT OPENING PRIOR TO ORDERING JOINT SEAL MATERIAL. IF THE ACTUAL JOINT OPENING VARIES FROM THE OPENING INDICATED IN THE DETAILS BY MORE THAN 1/4", NOTIFY THE ENGINEER.

THE MANUFACTURER IS TO PROVIDE THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL FOR THE SIZE OF THE OPENING ON THE PLANS AND ACCOMMODATE THE MINIMUM EXPANSION SHOWN ON THE PLANS.

FOAM JOINTS SHALL BE INSTALLED AS PER THE MANUFACTURER'S RECOMMENDATIONS.

THE CONTRACTOR SHALL TAKE CARE DURING JOINT REHAB OPERATIONS NOT TO DROP ANY MATERIAL BELOW THE BRIDGE, WITHOUT PROTECTIVE DEVICES BELOW TO CATCH THE MATERIAL. ANY MATERIAL THAT FALLS BELOW THE BRIDGE SHALL BE CONTAINED, REMOVED AND DISPOSED OF BY THE CONTRACTOR AT NO EXTRA COST TO THE DEPARTMENT. IF THE ENGINEER DETERMINES THAT THE PROTECTIVE DEVICES ARE NOT ADEQUATE OR NOT BEING EMPLOYED, THE WORK SHALL BE SUSPENDED UNTIL ADEQUATE PROTECTION IS PROVIDED.

THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINTS IN LIEU OF SAWING THE JOINT.

THE INSTALLED FOAM JOINTS SHALL BE WATER TIGHT.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED. CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

QUANTITIES SHOWN IN THE ELASTOMERIC CONCRETE FOR PRESERVATION TABLE ARE BASED ON THE MINIMUM JOINT DEMOLITION SHOWN.

FOR EXCAVATION BELOW THE BOTTOM OF PLANNED JOINT DEMOLITION, CONCRETE FOR DECK REPAIR SHALL BE PLACED IN THE EXCAVATED AREA TO THE ELEVATION AT THE BOTTOM OF THE PROPOSED ELASTOMERIC CONCRETE FOR PRESERVATION HEADERS SHOWN.

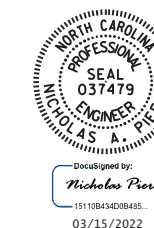
FINAL SURFACE OF THE JOINT DEMOLITION AREA PRIOR TO PLACEMENT OF CONCRETE REPAIR MATERIAL OR ELASTOMERIC CONCRETE SHOULD BE REASONABLY FLAT AND LEVEL. ENGINEER SHALL DETERMINE THE ACCEPTABILITY OF THE SURFACE PRIOR TO PLACEMENT OF REPAIR CONCRETE OR ELASTOMERIC CONCRETE.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISIONS.

PROJECT NO. **41665.14B**
MCDOWELL COUNTY
BRIDGE NO. **580032**



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

FOAM JOINT SEALS FOR PRESERVATION DETAILS

REVISIONS					SHEET NO. S1-10
NO.	BY:	DATE:	NO.	DATE:	
1			3		TOTAL SHEETS 34
2			4		

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DRAWN BY: N.A. PIERCE DATE: 01/2022
CHECKED BY: D.A. CANTRELL DATE: 01/2022
DESIGN ENGINEER OF RECORD: N.A. PIERCE DATE: 01/2022

NOTES

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.



CONCRETE REPAIRS MAYBE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

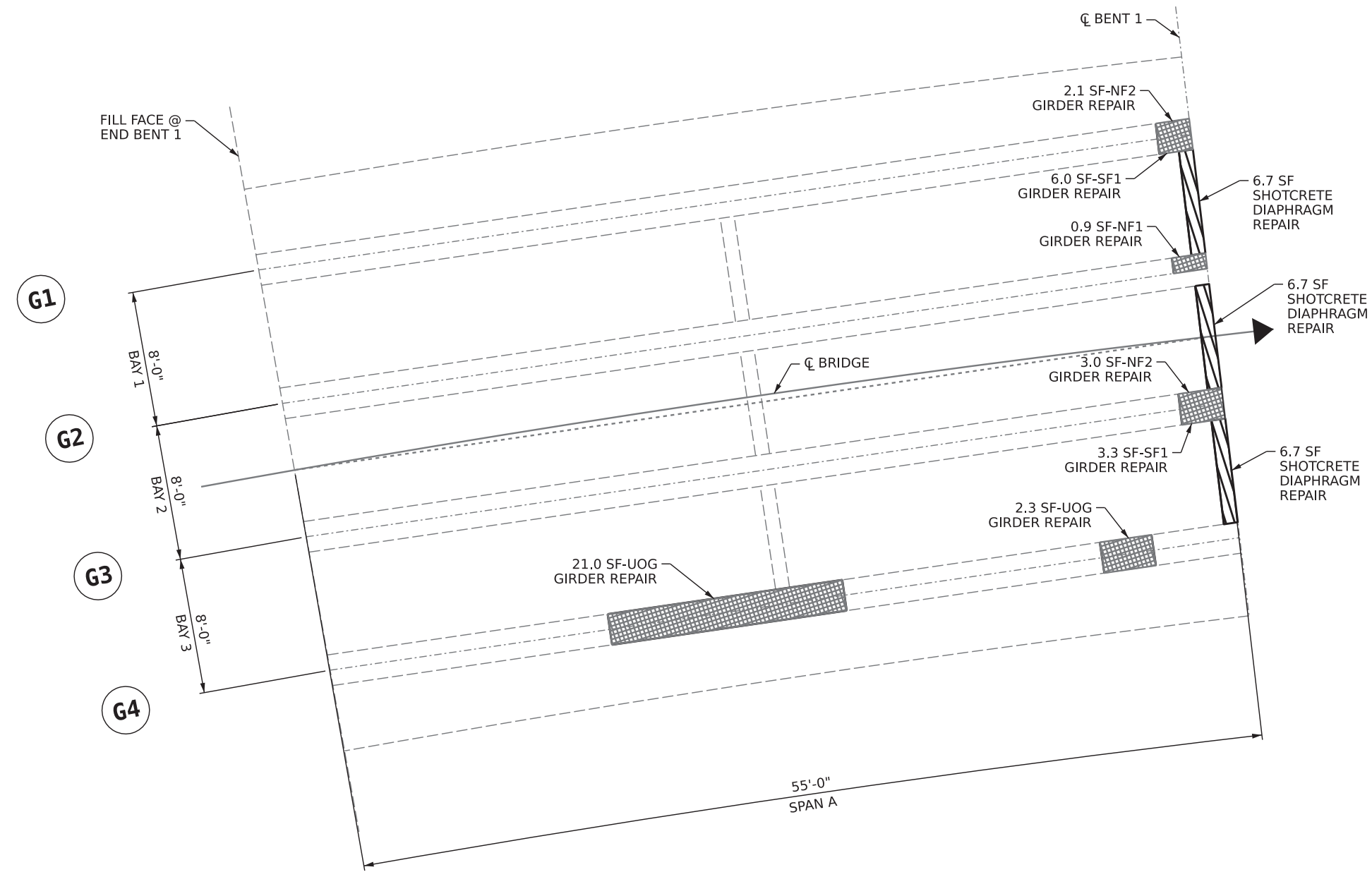
FOR "SHOTCRETE REPAIRS", SEE SPECIAL PROVISIONS.

FOR EPOXY COATING CONCRETE GIRDER ENDS, SEE SPECIAL PROVISIONS.

FOR CONCRETE GIRDER REPAIR DETAILS AND LIMITS OF EPOXY COATING CONCRETE GIRDER ENDS, SEE CONCRETE GIRDER REPAIRS DETAIL SHEET.

REPAIR LEGEND

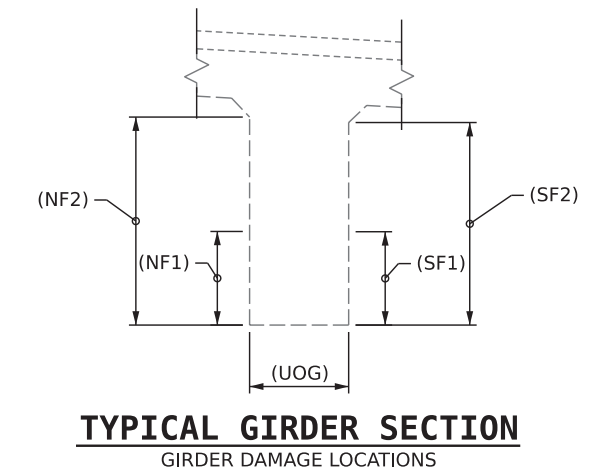
-  SHOTCRETE REPAIR AREA
-  CONCRETE REPAIR AREA
- (G#)** - GIRDER NUMBER
- NF# - NORTH FACE
- SF# - SOUTH FACE
- UOG - UNDERSIDE OF GIRDER



AS-BUILT REPAIR QUANTITY TABLE

DECK UNDERSIDE REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0	0		
CONCRETE DIAPHRAGM	20.1	20.1		
OVERHANG	0	0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0	0		
CONCRETE DIAPHRAGM	0	0		
OVERHANG	0	0		
CONCRETE GIRDER	38.6	22.8		
EPOXY COATING		AREA SF		AREA SF
GIRDER ENDS		25.8		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.



TYPICAL GIRDER SECTION
GIRDER DAMAGE LOCATIONS

PROJECT NO. **41665.14B**
MCDOWELL COUNTY
 BRIDGE NO. **580032**

SHEET 1 OF 6



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
DECK UNDERSIDE REPAIRS
SPAN A

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-11
1			3			TOTAL SHEETS
2			4			34

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DRAWN BY : N.A. PIERCE DATE : 12/2021
 CHECKED BY : B.L. GREEN DATE : 01/2022
 DESIGN ENGINEER OF RECORD : N.A. PIERCE DATE : 01/2022

NOTES

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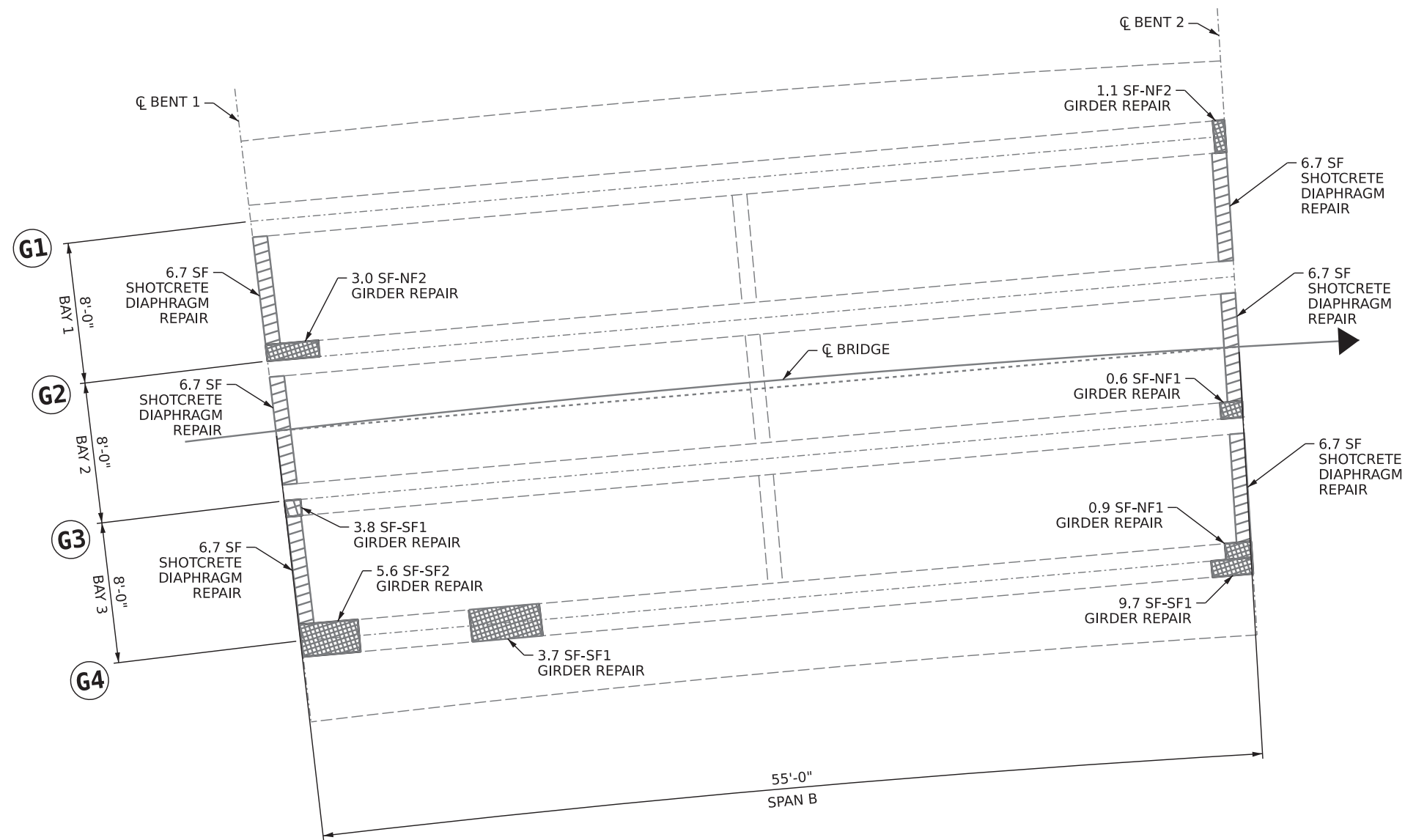
FOR "SHOTCRETE REPAIRS", SEE SPECIAL PROVISIONS.

FOR EPOXY COATING CONCRETE GIRDER ENDS, SEE SPECIAL PROVISIONS.

FOR CONCRETE GIRDER REPAIR DETAILS AND LIMITS OF EPOXY COATING CONCRETE GIRDER ENDS, SEE CONCRETE GIRDER REPAIRS DETAIL SHEET.

REPAIR LEGEND

-  SHOTCRETE REPAIR AREA
-  CONCRETE REPAIR AREA
-  G# - GIRDER NUMBER
- NF# - NORTH FACE
- SF# - SOUTH FACE
- UOG - UNDERSIDE OF GIRDER

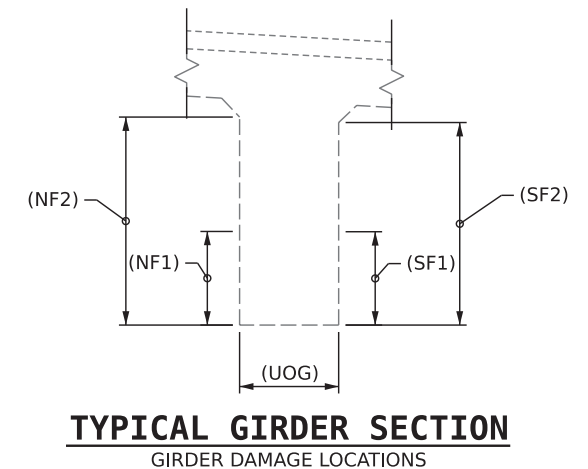


DECK UNDERSIDE REPAIRS

AS-BUILT REPAIR QUANTITY TABLE

DECK UNDERSIDE REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0	0		
CONCRETE DIAPHRAGM	40.2	40.2		
OVERHANG	0	0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0	0		
CONCRETE DIAPHRAGM	0	0		
OVERHANG	0	0		
CONCRETE GIRDER	28.4	21.9		
EPOXY COATING		AREA SF		AREA SF
GIRDER ENDS		51.6		

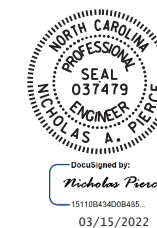
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.



TYPICAL GIRDER SECTION
GIRDER DAMAGE LOCATIONS

PROJECT NO. **41665.14B**
MCDOWELL COUNTY
 BRIDGE NO. **580032**

SHEET 2 OF 6



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

DECK UNDERSIDE REPAIRS
SPAN B

REVISIONS						SHEET NO. S1-12 TOTAL SHEETS 34
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

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FOR EPOXY COATING CONCRETE GIRDER ENDS, SEE SPECIAL PROVISIONS.

FOR CONCRETE GIRDER REPAIR DETAILS AND LIMITS OF EPOXY COATING CONCRETE GIRDER ENDS, SEE CONCRETE GIRDER REPAIRS DETAIL SHEET.

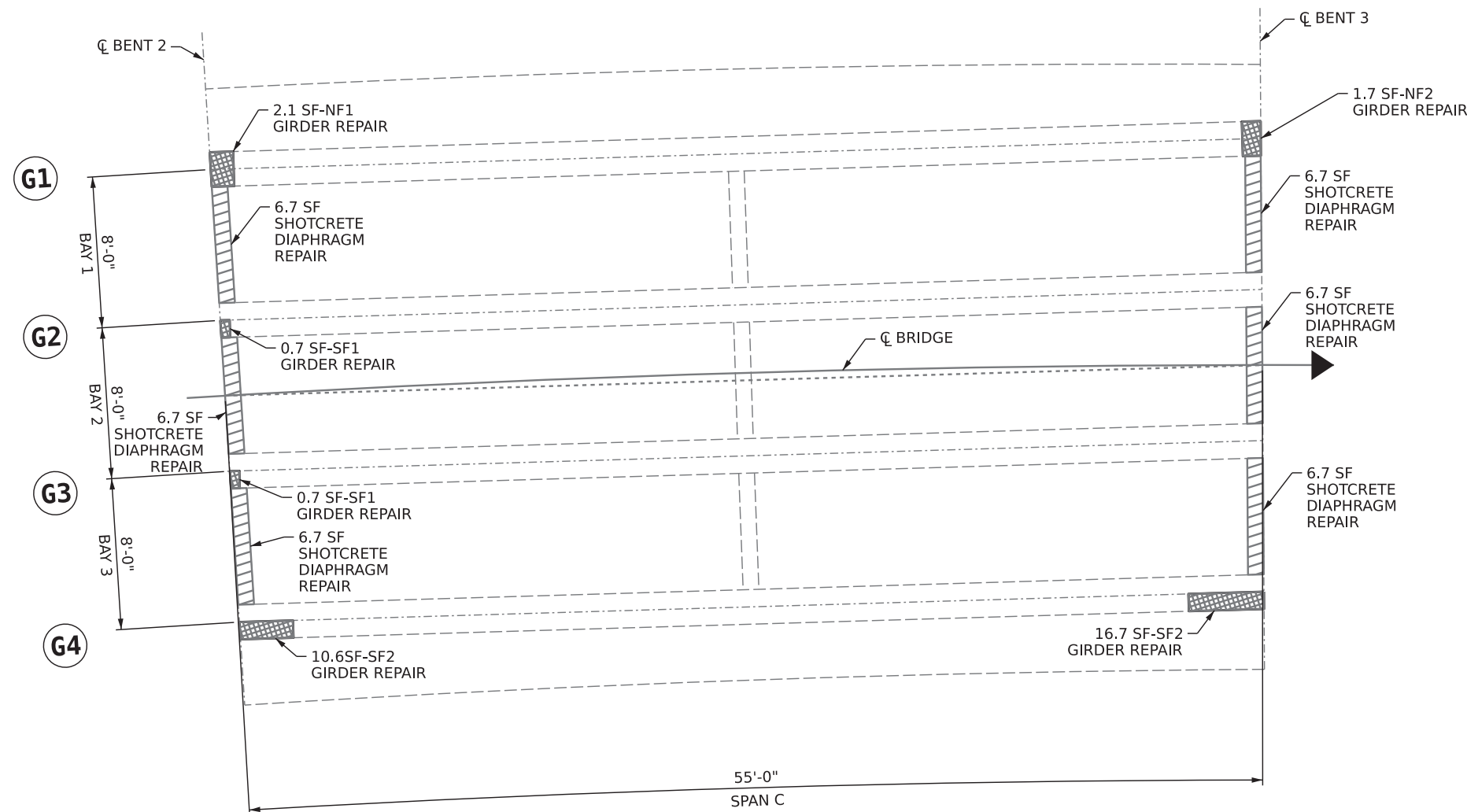
REPAIR LEGEND

-  SHOTCRETE REPAIR AREA
-  CONCRETE REPAIR AREA
- (G#)** - GIRDER NUMBER
- NF# - NORTH FACE
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- UOG - UNDERSIDE OF GIRDER

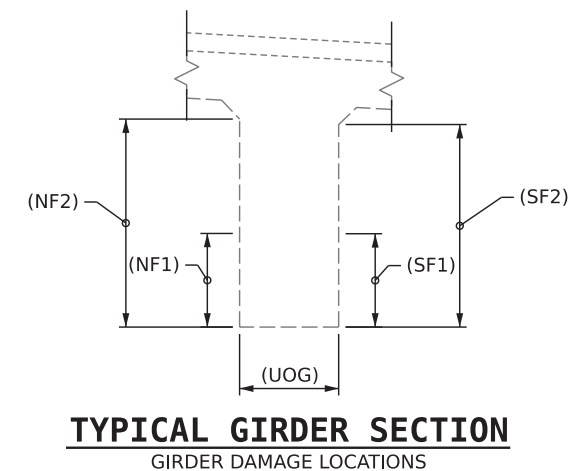
AS-BUILT REPAIR QUANTITY TABLE

DECK UNDERSIDE REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0	0		
CONCRETE DIAPHRAGM	40.2	40.2		
OVERHANG	0	0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0	0		
CONCRETE DIAPHRAGM	0	0		
OVERHANG	0	0		
CONCRETE GIRDER	32.5	33.5		
EPOXY COATING	AREA SF	AREA SF	AREA SF	AREA SF
GIRDER ENDS		51.6		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.



DECK UNDERSIDE REPAIRS



TYPICAL GIRDER SECTION
GIRDER DAMAGE LOCATIONS

PROJECT NO. **41665.14B**
MCDOWELL COUNTY
 BRIDGE NO. **580032**

SHEET 3 OF 6



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

DECK UNDERSIDE REPAIRS
SPAN C

NO.	BY:	DATE:	REVISIONS			SHEET NO.
			NO.	BY:	DATE:	
1			3			S1-13
2			4			TOTAL SHEETS 34

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DRAWN BY : N.A. PIERCE DATE : 12/2021
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FOR EPOXY COATING CONCRETE GIRDER ENDS, SEE SPECIAL PROVISIONS.

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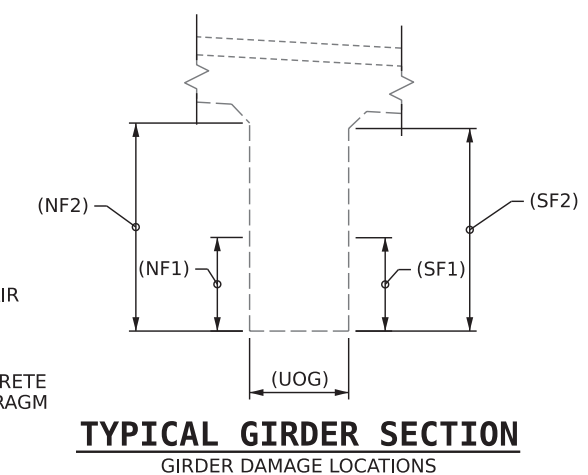
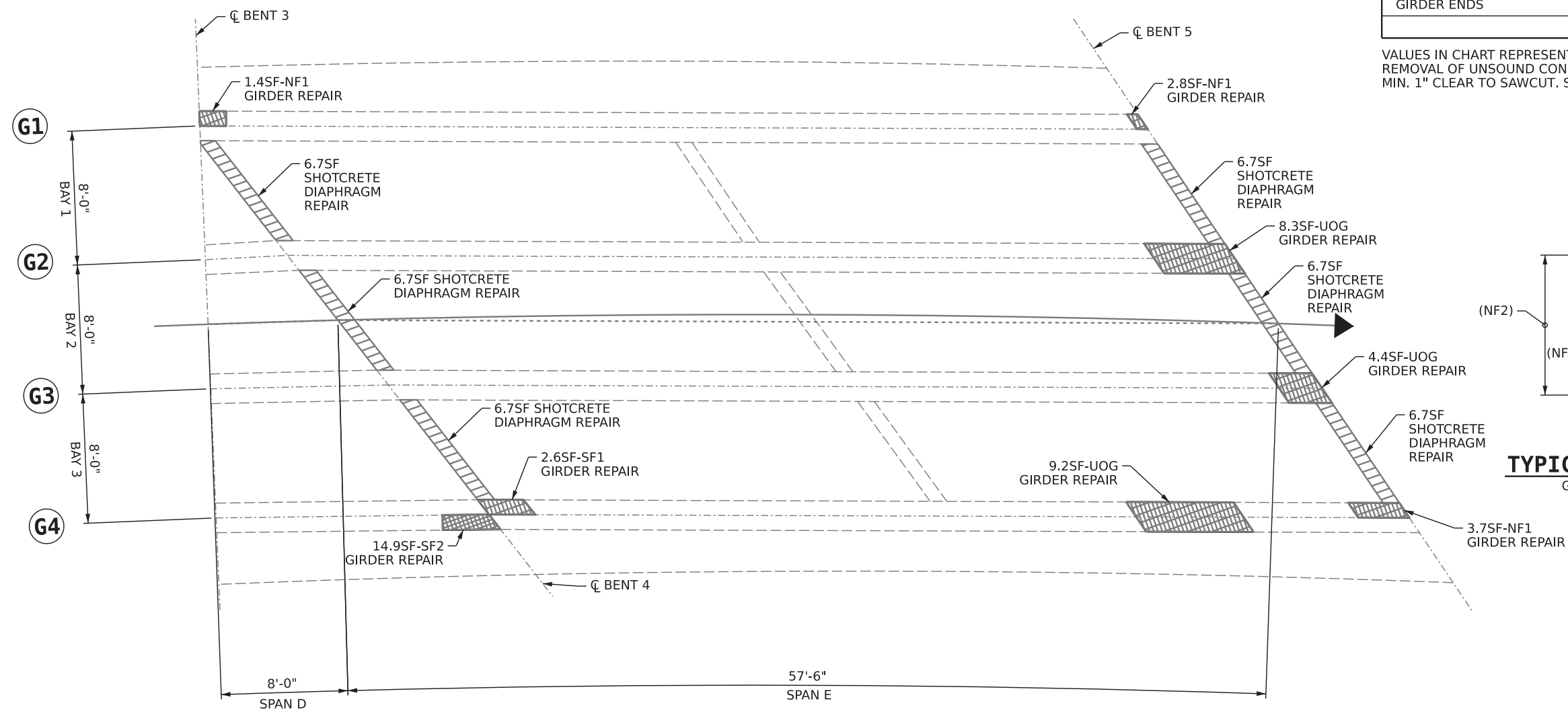
REPAIR LEGEND

-  SHOTCRETE REPAIR AREA
-  CONCRETE REPAIR AREA
-  G# - GIRDER NUMBER
- NF# - NORTH FACE
- SF# - SOUTH FACE
- UOG - UNDERSIDE OF GIRDER

AS-BUILT REPAIR QUANTITY TABLE

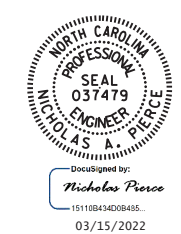
DECK UNDERSIDE REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0	0		
CONCRETE DIAPHRAGM	40.2	40.2		
OVERHANG	0	0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0	0		
CONCRETE DIAPHRAGM	0	0		
OVERHANG	0	0		
CONCRETE GIRDER	47.3	30.1		
EPOXY COATING		AREA SF		AREA SF
GIRDER ENDS		51.6		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.



DECK UNDERSIDE REPAIRS

PROJECT NO. **41665.14B**
MCDOWELL COUNTY
 BRIDGE NO. **580032**
 SHEET 4 OF 6



**DECK UNDERSIDE REPAIRS
SPAN D & E**

REVISIONS						SHEET NO. S1-14 TOTAL SHEETS 34
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

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DRAWN BY : N.A. PIERCE DATE : 12/2021
 CHECKED BY : B.L. GREEN DATE : 01/2022
 DESIGN ENGINEER OF RECORD : N.A. PIERCE DATE : 01/2022

3/15/2022 S:\DEV\Squad.D\Misc Projects\580032.CriticalFind Repair\401.027.SMU.UDR04.S1-14_580032.dgn naperce

NOTES

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.




CONCRETE REPAIRS MAYBE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR "SHOTCRETE REPAIRS", SEE SPECIAL PROVISIONS.

FOR EPOXY COATING CONCRETE GIRDER ENDS, SEE SPECIAL PROVISIONS.

FOR CONCRETE GIRDER REPAIR DETAILS AND LIMITS OF EPOXY COATING CONCRETE GIRDER ENDS, SEE CONCRETE GIRDER REPAIRS DETAIL SHEET.

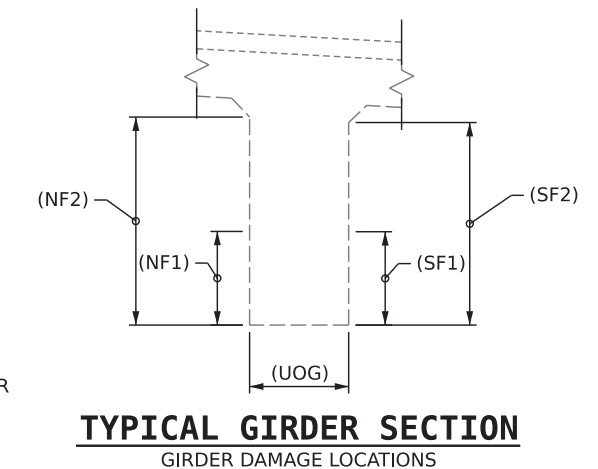
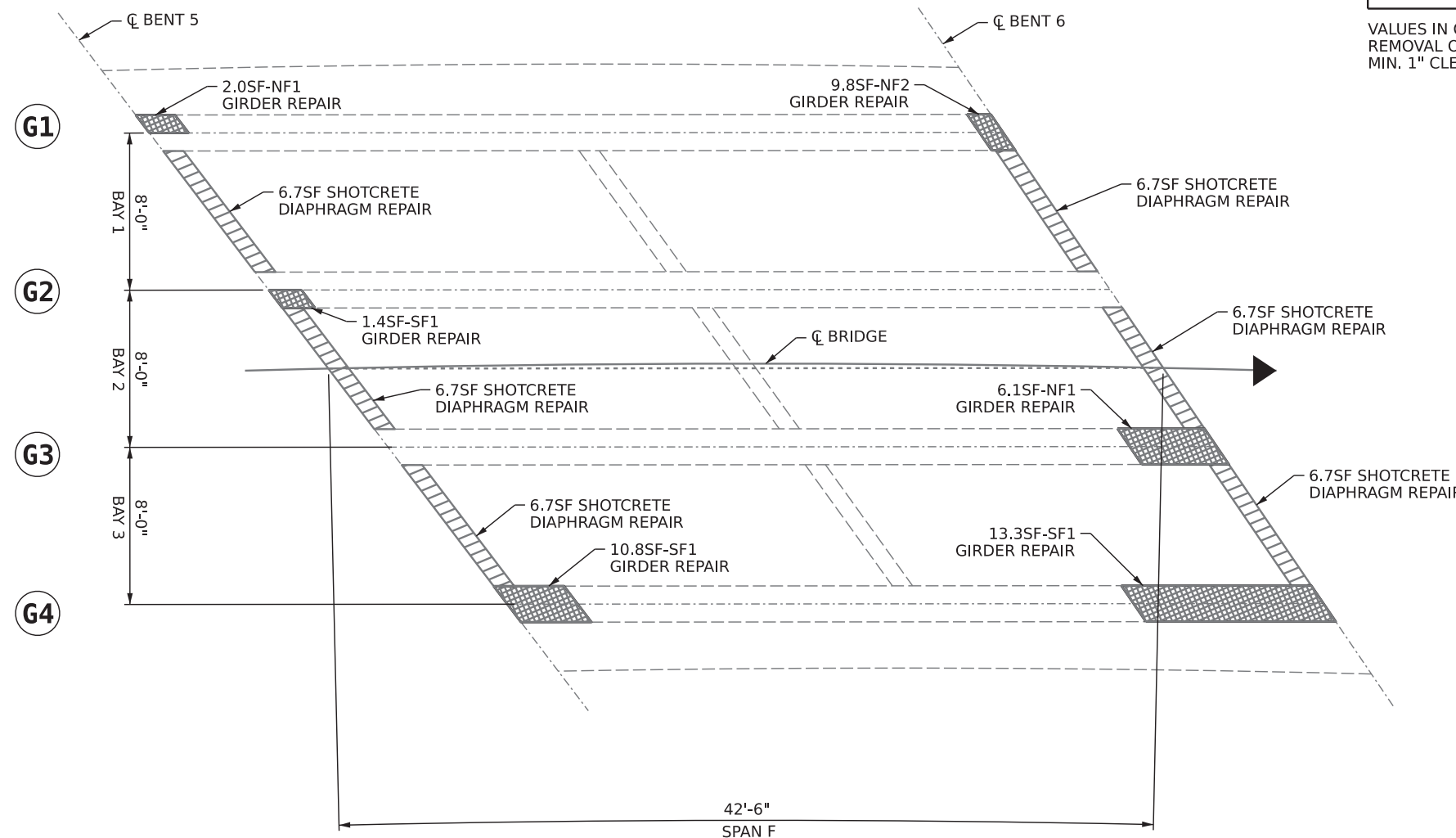
REPAIR LEGEND

-  SHOTCRETE REPAIR AREA
-  CONCRETE REPAIR AREA
-  G# - GIRDER NUMBER
- NF# - NORTH FACE
- SF# - SOUTH FACE
- UOG - UNDERSIDE OF GIRDER

AS-BUILT REPAIR QUANTITY TABLE

DECK UNDERSIDE REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0	0		
CONCRETE DIAPHRAGM	40.2	40.2		
OVERHANG	0	0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0	0		
CONCRETE DIAPHRAGM	0	0		
OVERHANG	0	0		
CONCRETE GIRDER	43.4	38.0		
EPOXY COATING		AREA SF		AREA SF
GIRDER ENDS		51.6		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.



DECK UNDERSIDE REPAIRS

PROJECT NO. **41665.14B**
MCDOWELL COUNTY
 BRIDGE NO. **580032**

SHEET 5 OF 6



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

DECK UNDERSIDE REPAIRS
SPAN F

REVISIONS						SHEET NO. S1-15
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 34
2			4			

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DRAWN BY : N.A. PIERCE DATE : 12/2021
 CHECKED BY : B.L. GREEN DATE : 01/2022
 DESIGN ENGINEER OF RECORD : N.A. PIERCE DATE : 01/2022

NOTES

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CONCRETE REPAIRS MAYBE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR "SHOTCRETE REPAIRS", SEE SPECIAL PROVISIONS.

FOR EPOXY COATING CONCRETE GIRDER ENDS, SEE SPECIAL PROVISIONS.

FOR CONCRETE GIRDER REPAIR DETAILS AND LIMITS OF EPOXY COATING CONCRETE GIRDER ENDS, SEE CONCRETE GIRDER REPAIRS DETAIL SHEET.

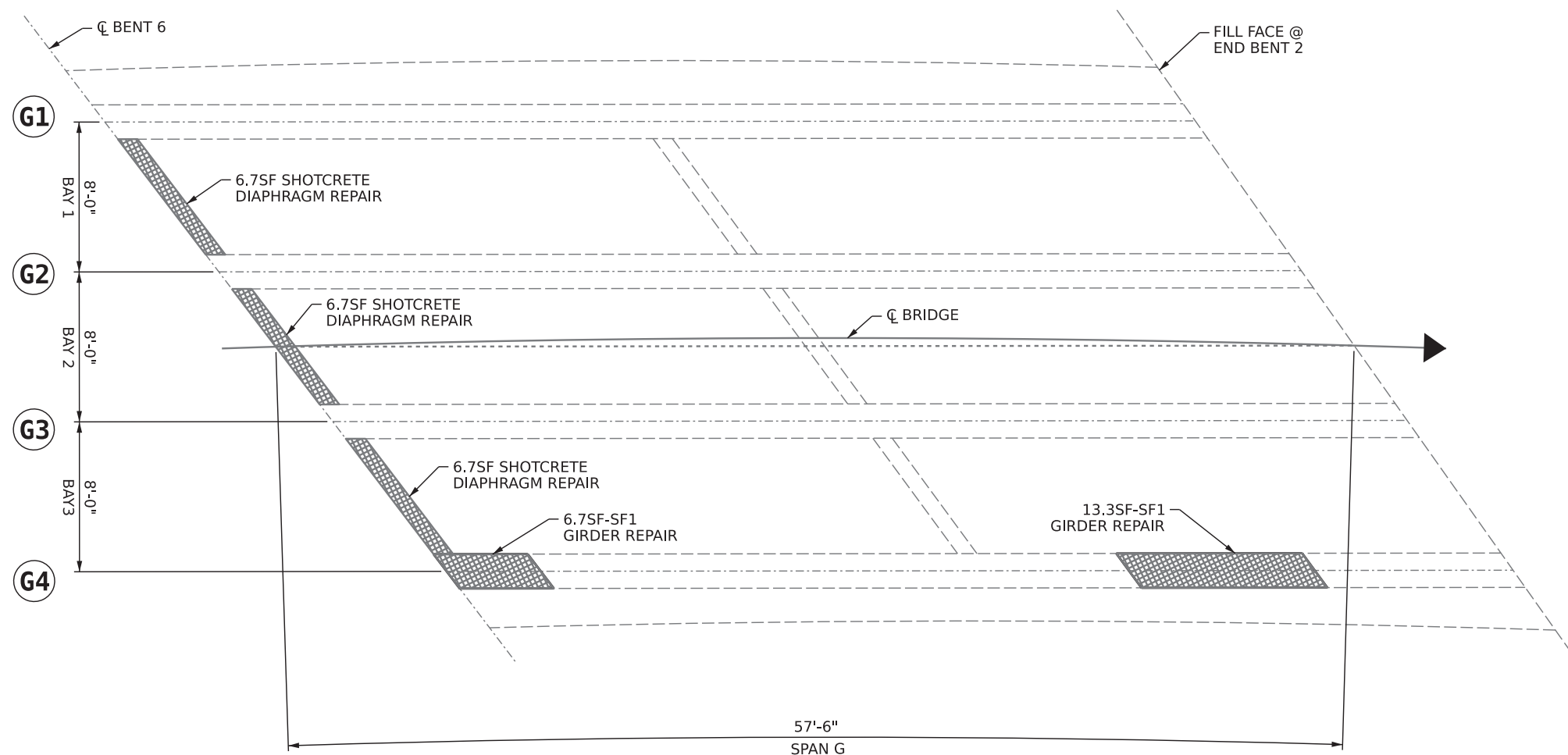
REPAIR LEGEND

-  SHOTCRETE REPAIR AREA
-  CONCRETE REPAIR AREA
-  G# - GIRDER NUMBER
- NF# - NORTH FACE
- SF# - SOUTH FACE
- UOG - UNDERSIDE OF GIRDER

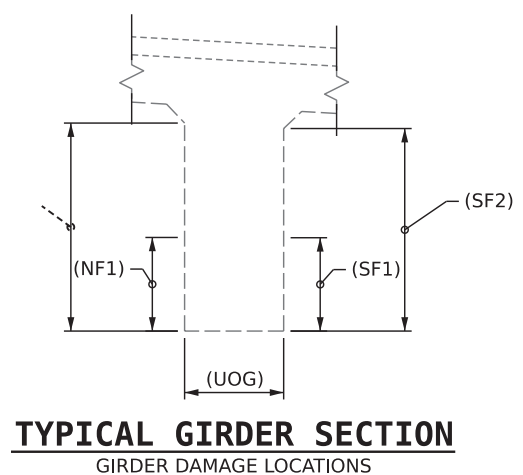
AS-BUILT REPAIR QUANTITY TABLE

DECK UNDERSIDE REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0	0		
CONCRETE DIAPHRAGM	20.1	20.1		
OVERHANG	0	0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0	0		
CONCRETE DIAPHRAGM	0	0		
OVERHANG	0	0		
CONCRETE GIRDER	20.0	12.2		
EPOXY COATING		AREA SF		AREA SF
GIRDER ENDS		25.8		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

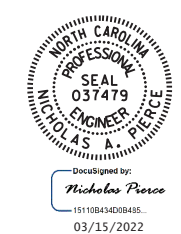


DECK UNDERSIDE REPAIRS



TYPICAL GIRDER SECTION
GIRDER DAMAGE LOCATIONS

PROJECT NO. **41665.14B**
MCDOWELL COUNTY
 BRIDGE NO. **580032**
 SHEET 6 OF 6



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

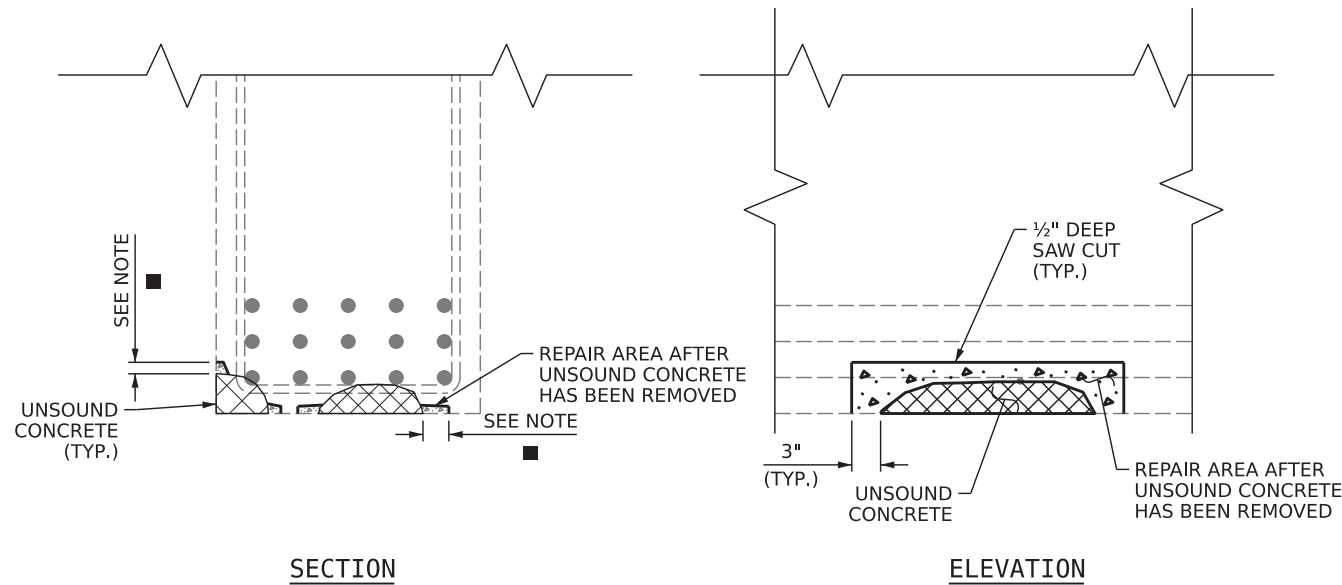
DECK UNDERSIDE REPAIRS
SPAN G

REVISIONS						SHEET NO. S1-16
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			34

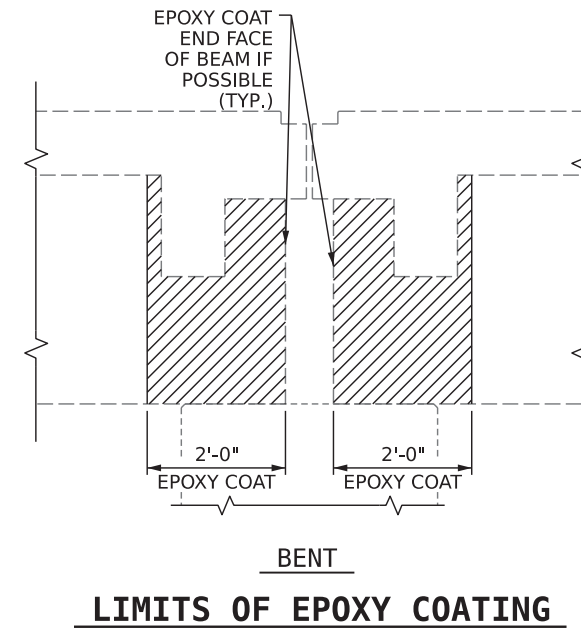
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DRAWN BY : N.A. PIERCE DATE : 12/2021
 CHECKED BY : B.L. GREEN DATE : 01/2022
 DESIGN ENGINEER OF RECORD : N.A. PIERCE DATE : 01/2022

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GIRDER SPALL REPAIR



NOTES

REPAIRS TO EXISTING DECK GIRDERS SHALL NOT BE MADE UNTIL THE SPAN HAS BEEN LIFTED TO ITS ORIGINAL BEARING LOCATION AND THE BENT CAP HAS BEEN FULLY REPAIRED.

EXISTING GIRDERS HAVE 1"Ø DOWELS CONNECTING THE GIRDER TO THE BENT CAP AT THE BEARINGS. THESE DOWELS WILL NEED TO BE STRAIGHTENED TO RETURNED TO ORIGINAL POSITIONS.

REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL. SAW CUT AROUND AREA TO A NOMINAL DEPTH OF 1/2".

IF MORE THAN HALF THE CIRCUMFERENCE OF A REINFORCING BAR IS EXPOSED DURING THIS PROCESS, REMOVE ADDITIONAL CONCRETE TO 1" BEHIND THE BAR.

■ ALL UNSOUND CONCRETE MUST BE REMOVED. HOWEVER, REINFORCEMENT SHOULD NOT BE DISTURBED UNLESS ABSOLUTELY NECESSARY. USE EXTREME CARE NOT TO DAMAGE REINFORCING STEEL.

USE ABRASIVE BLASTING TO CLEAN ALL EXPOSED REINFORCING BARS. FOR BARS WITH MORE THAN 10% SECTION LOSS, SPLICE AND SECURELY TIE SUPPLEMENTAL REINFORCING BARS AS NEEDED.

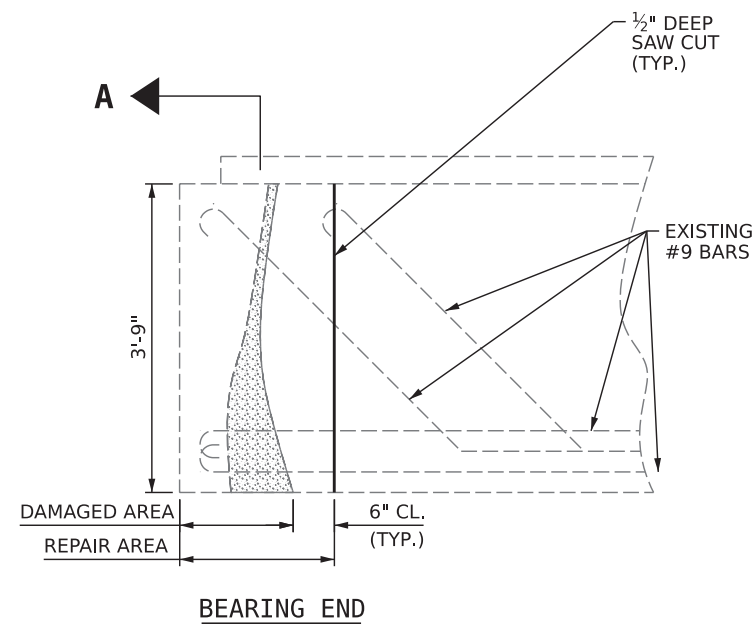
REMOVE ALL LOOSE OR WEAKENED MATERIAL, THEN CLEAN THE REPAIR AREA OF DIRT, GREASE, OIL AND FOREIGN MATTER.

PREPARE SURFACE AND PLACE APPROVED REPAIR MATERIAL ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS, MAXIMUM AGGREGATE SIZE FOR REPAIR MATERIAL SHALL NOT EXCEED 2/3 THE MINIMUM REPAIR DEPTH.

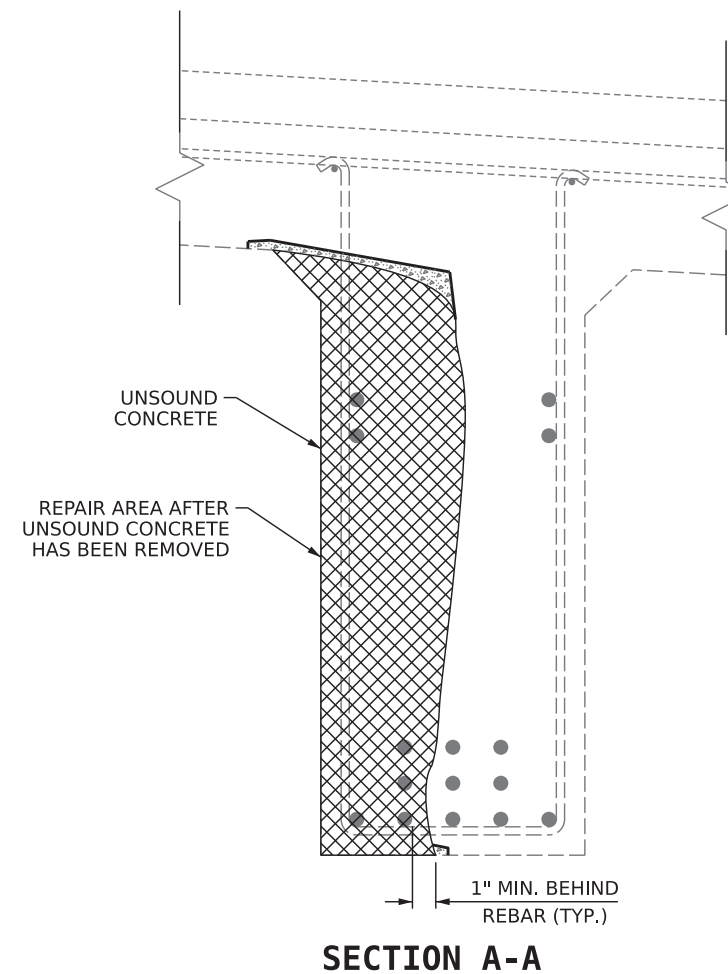
PREPACKAGED MATERIAL IS REQUIRED.

FOR REPAIRS TO CONCRETE GIRDERS, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING CONCRETE GIRDER ENDS, SEE SPECIAL PROVISIONS.



END OF GIRDER REPAIRS



SECTION A-A

PROJECT NO. **41665.14B**
MCDOWELL COUNTY
 BRIDGE NO. **580032**



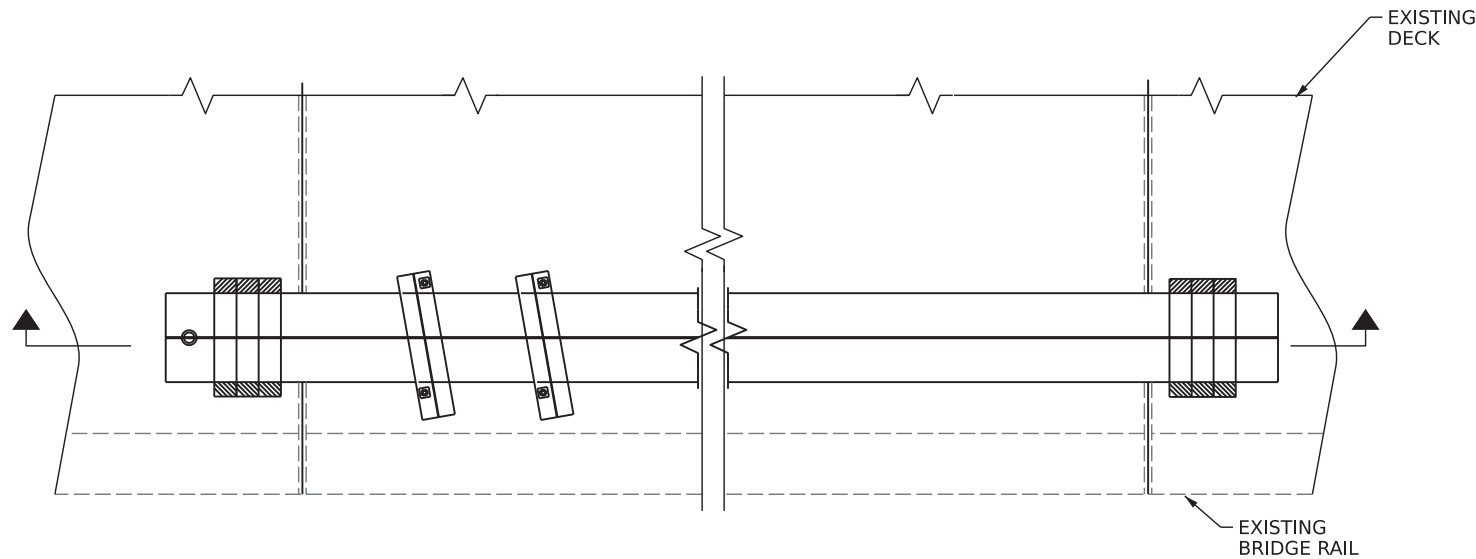
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**GIRDER REPAIR
 DETAILS**

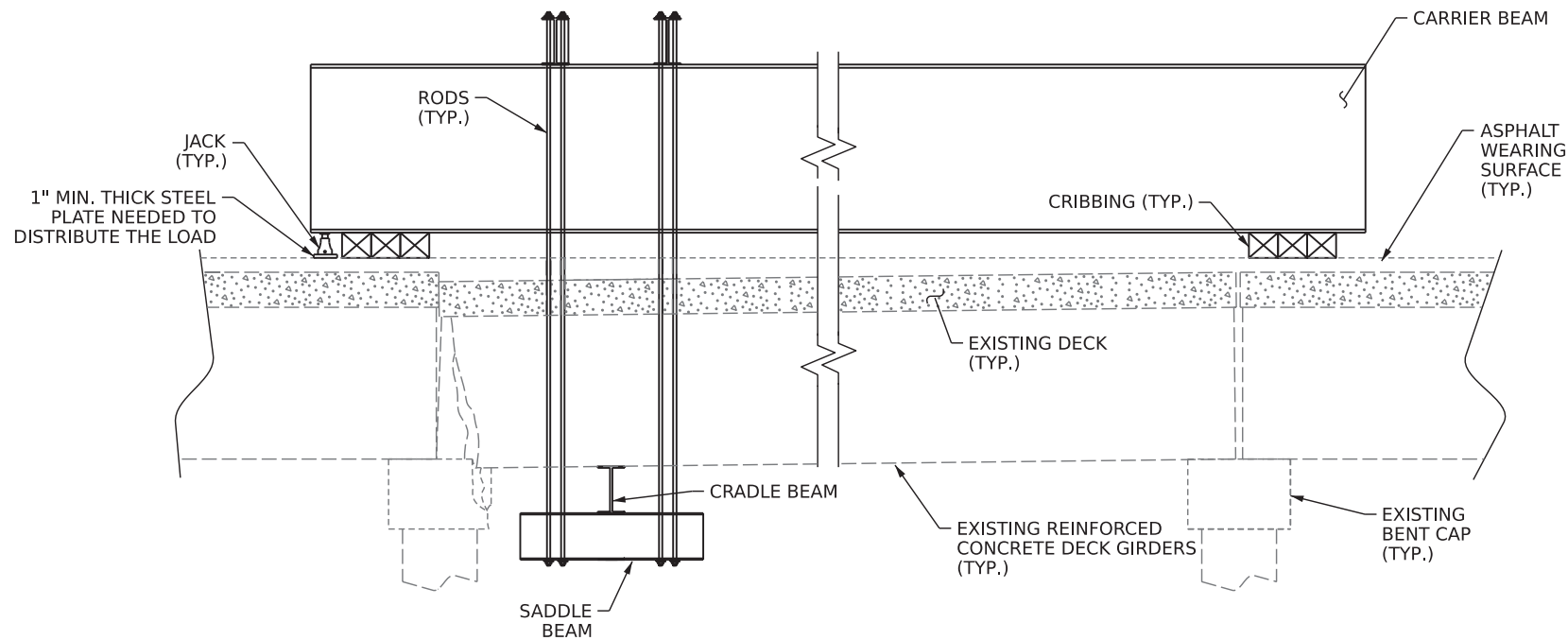
DRAWN BY : N.A. PIERCE DATE : 12/2021
 CHECKED BY : D.A. CANTRELL DATE : 01/2022
 DESIGN ENGINEER OF RECORD : N.A. PIERCE DATE : 01/2022

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			34
2			4			

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PLAN



ELEVATION

CARRIER BEAM METHOD

NOTES

THIS DETAIL IS A GENERIC EXAMPLE OF A JACKING SCHEME AND DOES NOT NECESSARILY REPRESENT SPECIFIC CONDITIONS AT A PARTICULAR BRIDGE. ACTUAL BRIDGE GEOMETRIES, DIMENSIONS, AND CONDITIONS MAY DIFFER FROM THIS DETAIL. PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL INVESTIGATE THE BRIDGES ON THE PROJECT AND DEVELOP A JACKING PLAN TO BE SUBMITTED FOR REVIEW AND APPROVAL. SEE BRIDGE JACKING SPECIAL PROVISION.

PRIOR TO BRIDGE JACKING OPERATIONS, THE ENGINEER AND CONTRACTOR SHALL INSPECT THE STRUCTURE FOR ANY NOTABLE DEFECTS TO THE PRIMARY AND SECONDARY STRUCTURAL MEMBERS. ALL NOTABLE DEFECTS SHALL BE DOCUMENTED AND REPORTED TO THE AREA BRIDGE MAINTENANCE ENGINEER PRIOR TO COMMENCEMENT OF ANY BRIDGE JACKING. THE CONTRACTOR SHALL PROVIDE SAFE AND SUFFICIENT ACCESS TO ALL STRUCTURAL MEMBERS FOR THE ENGINEER TO ESTABLISH PROPER DOCUMENTATION.

PRIOR TO JACKING, THE CONTRACTOR SHALL ENSURE THERE ARE NO OBSTACLES PREVENTING THE BEAM FROM BEING LIFTED.

THE BEAM SHALL BE LIFTED ENOUGH THAT THE BEAM CLEARS THE BEARINGS AND ALL LOAD IS SUPPORTED BY THE JACKS. AFTER JACKING IS COMPLETE, THE CONTRACTOR SHALL PROVIDE FOR A METHOD TO REMOVE THE JACKS AND SUPPORT THE BEAM FOR DEAD AND LIVE LOAD DURING THE REPAIR OPERATIONS. IF THE JACKS REMAIN IN PLACE DURING THE ENTIRE JACKING AND REPAIR OPERATION, THEY SHALL HAVE MECHANICAL LOCK OFF CAPABILITIES.

IF, DURING THE JACKING PROCESS, OR WHILE THE BEAM IS BEING SUPPORTED, THE BEAM SHIFTS FROM ITS ORIGINAL POSITION, ALL WORK SHALL CEASE AND THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY.

BEARINGS ADJACENT TO THE BEAM BEING JACKED MAY BE LOOSENED TO DECREASE THE RESISTANCE OF THE DECK SLAB DURING JACKING. ALL BEARINGS LOOSENED SHALL BE TIGHTENED BACK AFTER REPAIR OPERATIONS ARE COMPLETED AND THE JACKS AND BLOCKING HAVE BEEN REMOVED.

THE EXISTING BEAMS SHALL BE JACKED TO THEIR ORIGINAL BEARING LOCATIONS. THE MAXIMUM DIFFERENTIAL BETWEEN ADJACENT BEAMS THAT ARE BEING JACKED SHOULD BE WITHIN 1/8" OF THEIR ORIGINAL ELEVATION WHEN COMPLETED.

LOADS PROVIDED IN THE "BRIDGE JACKING TABLE" ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR'S ENGINEER SHALL DETERMINE THE EXPECTED LOADS TO BE LIFTED DURING THE BRIDGE JACKING OPERATIONS.

THE CONTRACTOR SHALL SUBMIT WORKING DRAWINGS AND CALCULATIONS OF THE JACKING PROCEDURE(S) SEALED BY A PROFESSIONAL ENGINEER IN THE STATE OF NORTH CAROLINA TO THE ENGINEER FOR APPROVAL PRIOR TO BRIDGE JACKING OPERATIONS.

FOR TYPE I OR TYPE II BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR WORKING DRAWING SUBMITTALS, SEE SPECIAL PROVISIONS.

ANY STEEL THAT HAS BEEN WELDED TO THE EXISTING STRUCTURE SHALL REMAIN IN PLACE.

TYPE II BRIDGE JACKING SHALL BE DONE WITH A HYDRAULIC JACKING SYSTEM THAT LIFTS EACH BEAM ALONG ENTIRE SPAN END WITH EQUAL FORCE AND AT AN EQUAL RATE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE CAUSED TO THE EXISTING STRUCTURE BY BRIDGE JACKING OPERATIONS AT NO ADDITIONAL COST TO THE DEPARTMENT.

PROJECT NO. **41665.14B**

MCDOWELL COUNTY

BRIDGE NO. **580032**

BRIDGE JACKING TABLE				
LOCATION	SPAN	BEAM(S)	BRIDGE JACKING TYPE	DEAD LOAD (DC+DW) (KIPS)
BENT 3	C	1-4	II	66



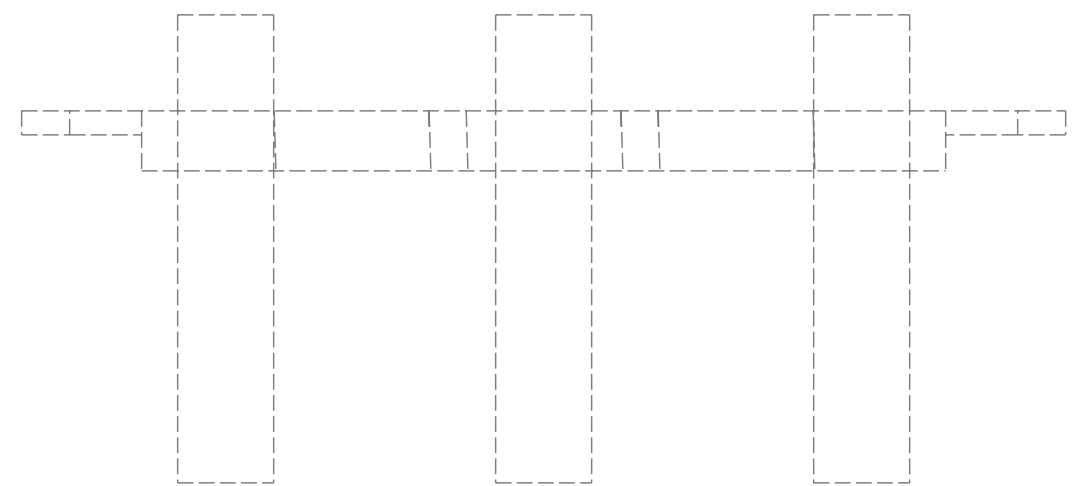
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**BRIDGE JACKING
DETAILS**

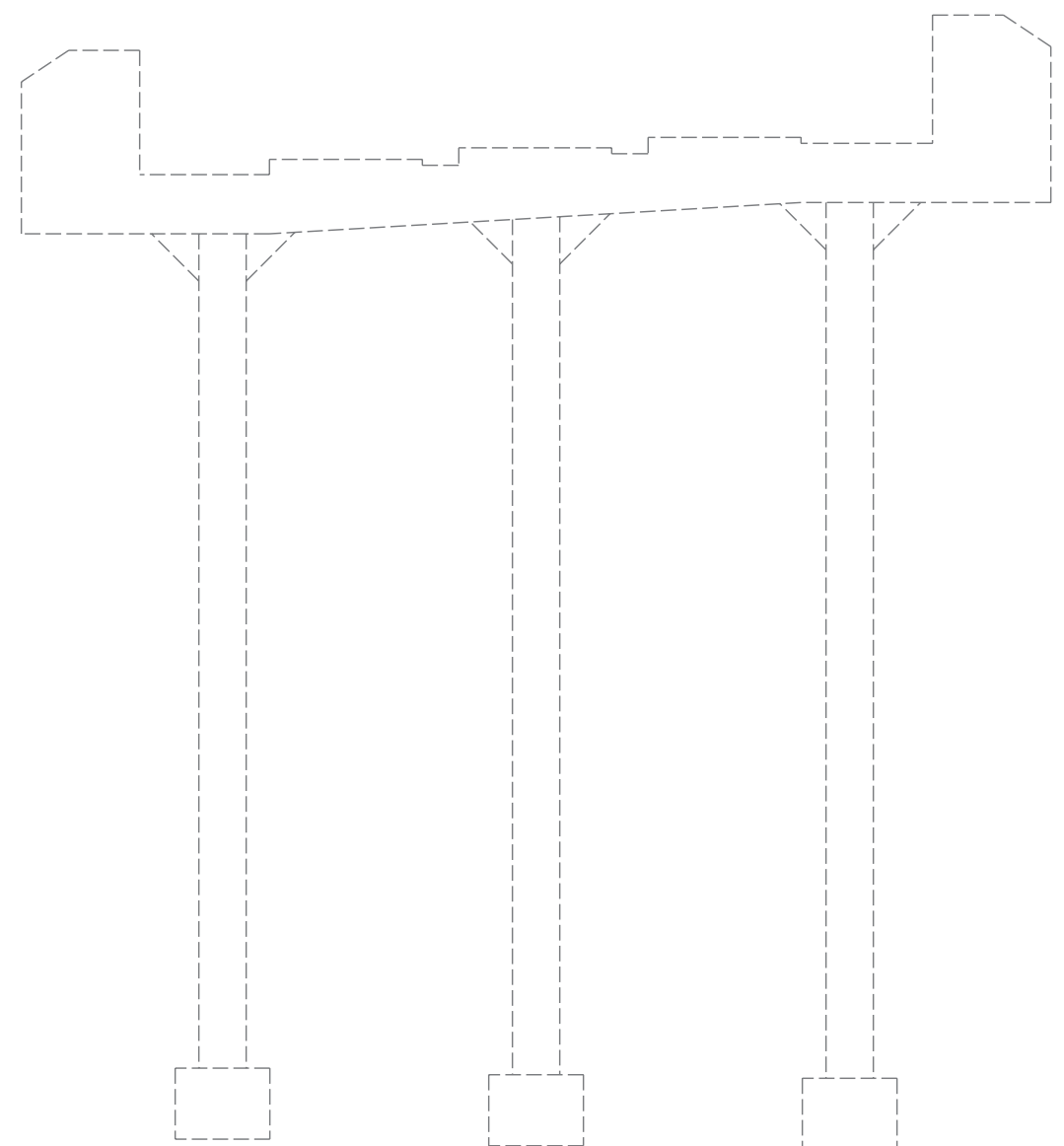
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FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-18
1			3			TOTAL SHEETS
2			4			34

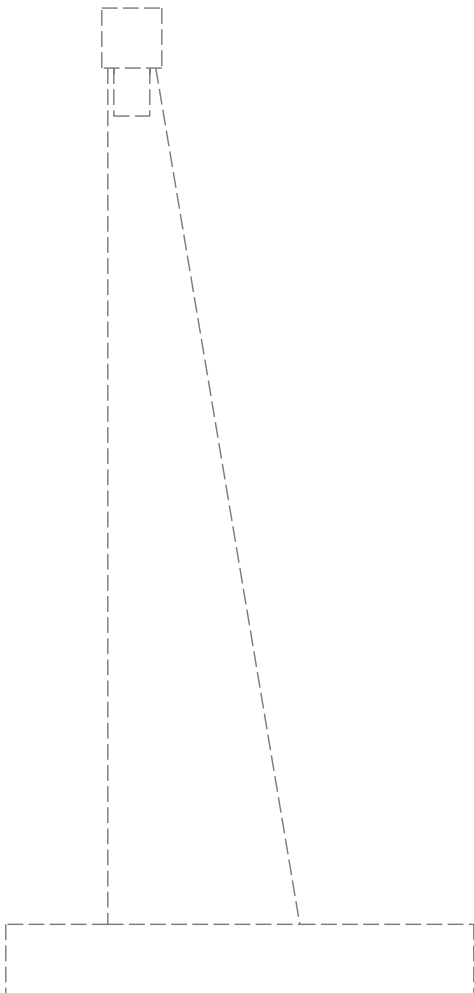
DRAWN BY : N.A. PIERCE DATE : 12/2021
 CHECKED BY : D.A. CANTRELL DATE : 01/2022
 DESIGN ENGINEER OF RECORD : N.A. PIERCE DATE : 01/2022



TOP OF CAP



ELEVATION



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

REPAIRS - END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
CURTAIN WALL	0	0		
WINGWALL				
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
CURTAIN WALL	0	0		
WINGWALL				
EPOXY RESIN INJECTION		LINEAR FT		LINEAR FT
CAP		0		
CURTAIN WALL		0		
WINGWALL				
EPOXY COATING		AREA SF		AREA SF
CAP		50.3		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.




NOTES

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CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

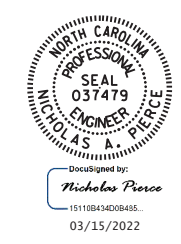
CONCRETE REPAIRS MAYBE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR "SHOTCRETE REPAIRS", SEE SPECIAL PROVISIONS.

-  SHOTCRETE REPAIR AREA
-  CONCRETE REPAIR AREA
-  EPOXY RESIN INJECTION

PROJECT NO. **41665.14B**
MCDOWELL COUNTY
 BRIDGE NO. **580032**

SHEET 1 OF 14



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE REPAIRS
END BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-19
1			3			TOTAL SHEETS
2			4			34

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DRAWN BY : **D.A. CANTRELL** DATE : **1/2022**
 CHECKED BY : **N.A. PIERCE** DATE : **01/2022**
 DESIGN ENGINEER OF RECORD : **N.A. PIERCE** DATE : **01/2022**

AS-BUILT REPAIR QUANTITY TABLE

REPAIRS - BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	10.4	2.9		
COLUMN	37.2	18.6		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	0	0		
EPOXY COATING		AREA SF		AREA SF
CAP		84.4		
STRUT		45.3		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.




NOTES

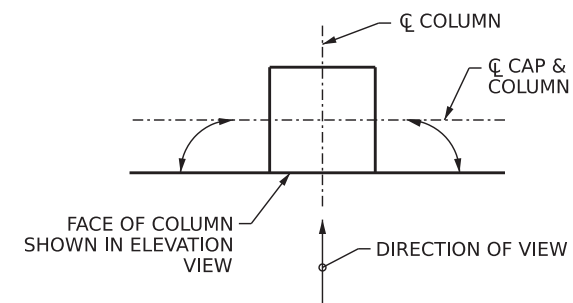
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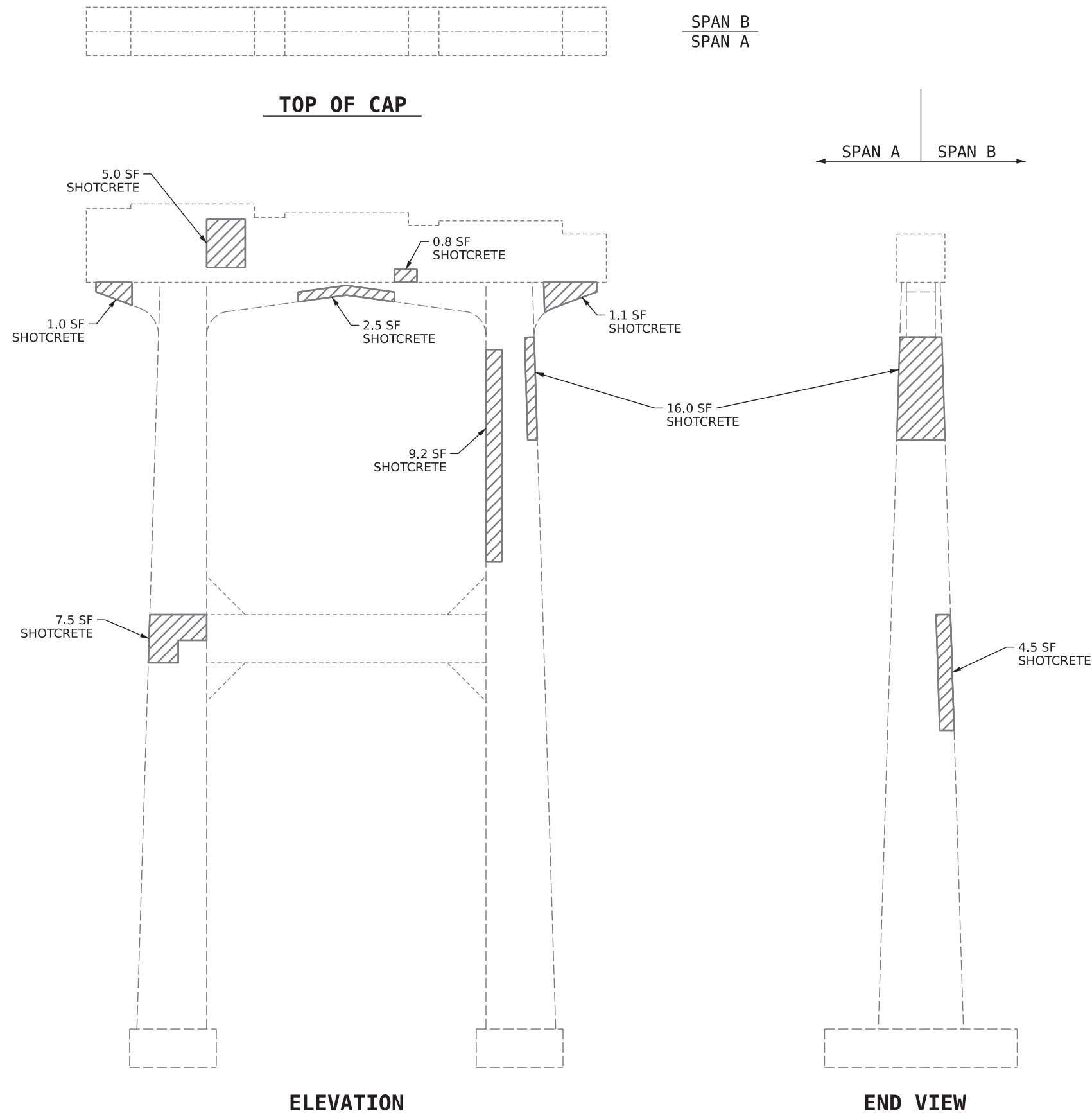
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FOR "SHOTCRETE REPAIRS", SEE SPECIAL PROVISIONS.

-  SHOTCRETE REPAIR AREA
-  CONCRETE REPAIR AREA
-  AREA PREVIOUSLY ACCOUNTED FOR ON ADJACENT FACE



UNWRAPPED COLUMN FACE DETAIL

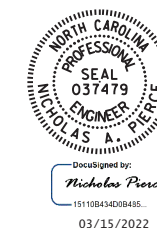


PROJECT NO. **41665.14B**
MCDOWELL COUNTY
 BRIDGE NO. **580032**

SHEET 2 OF 14

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE REPAIRS
BENT 1
SPAN A FACE



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REVISIONS						SHEET NO. S1-20
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 34
2			4			

DRAWN BY : **D.A. CANTRELL** DATE : **1/2022**
 CHECKED BY : **N.A. PIERCE** DATE : **01/2022**
 DESIGN ENGINEER OF RECORD : **N.A. PIERCE** DATE : **01/2022**

AS-BUILT REPAIR QUANTITY TABLE

REPAIRS - BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	31.4	15.6		
COLUMN	78.0	42.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	0	0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.




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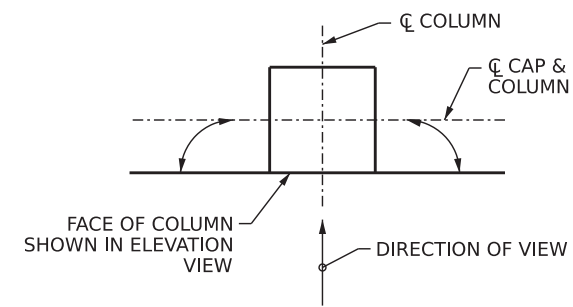
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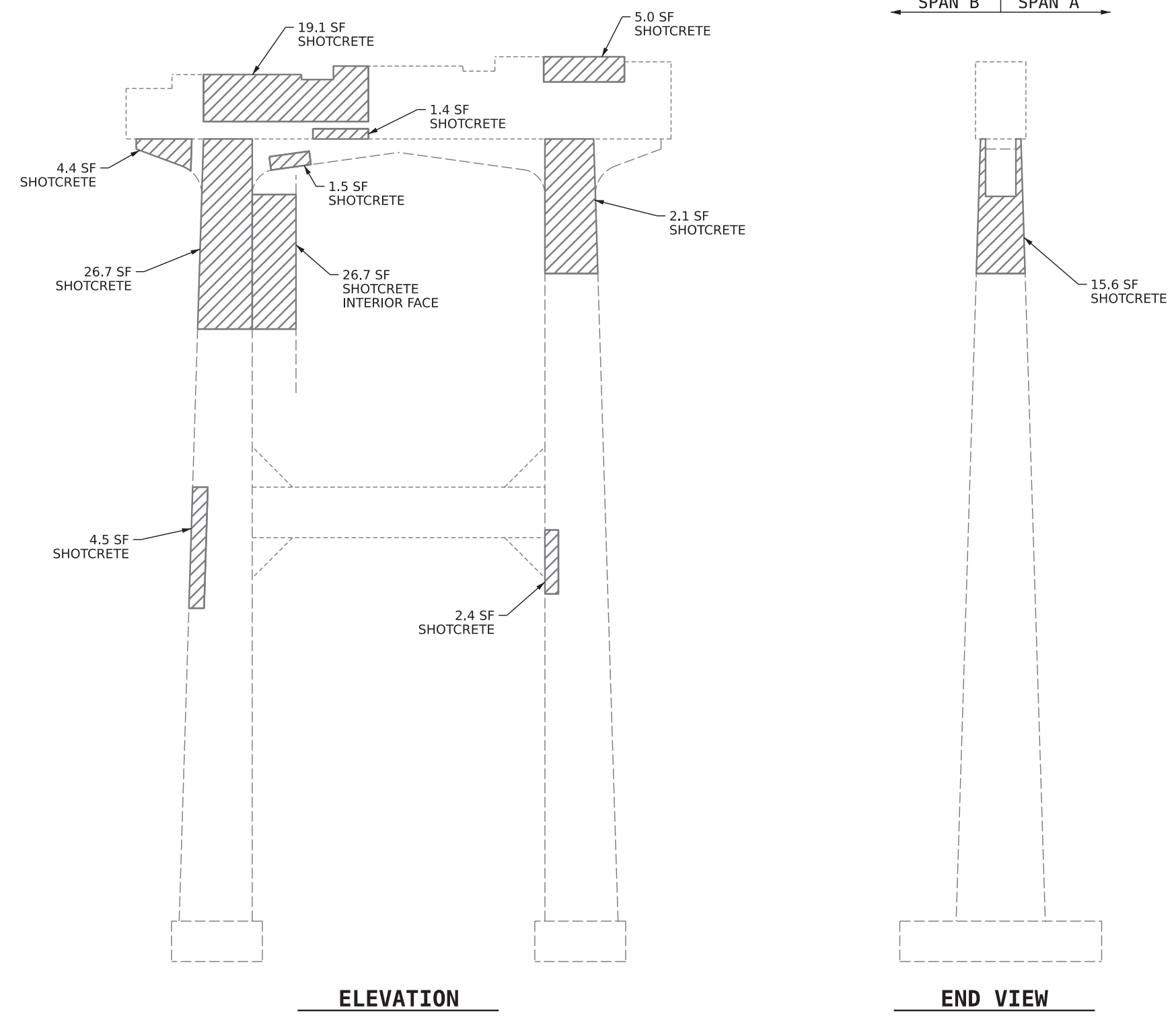
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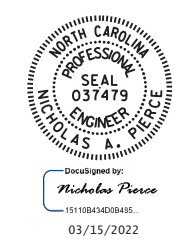
-  SHOTCRETE REPAIR AREA
-  CONCRETE REPAIR AREA
-  AREA PREVIOUSLY ACCOUNTED FOR ON ADJACENT FACE



BOTTOM OF CAP



PROJECT NO. **41665.14B**
MCDOWELL COUNTY
 BRIDGE NO. **580032**
 SHEET 3 OF 14



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE REPAIRS
BENT 1
SPAN B FACE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S1-21
2			4			

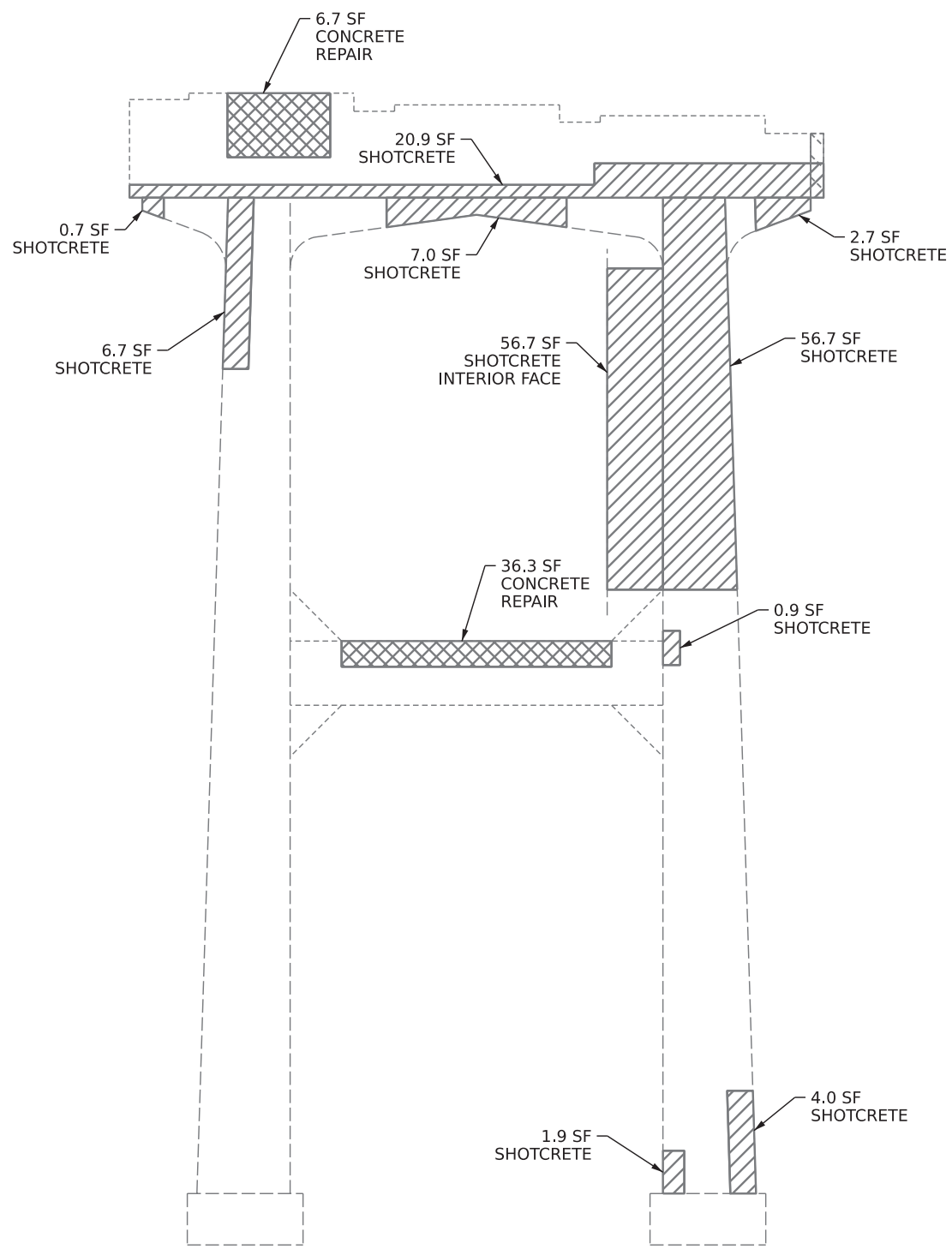
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DRAWN BY : **D.A. CANTRELL** DATE : **1/2022**
 CHECKED BY : **N.A. PIERCE** DATE : **01/2022**
 DESIGN ENGINEER OF RECORD : **N.A. PIERCE** DATE : **01/2022**

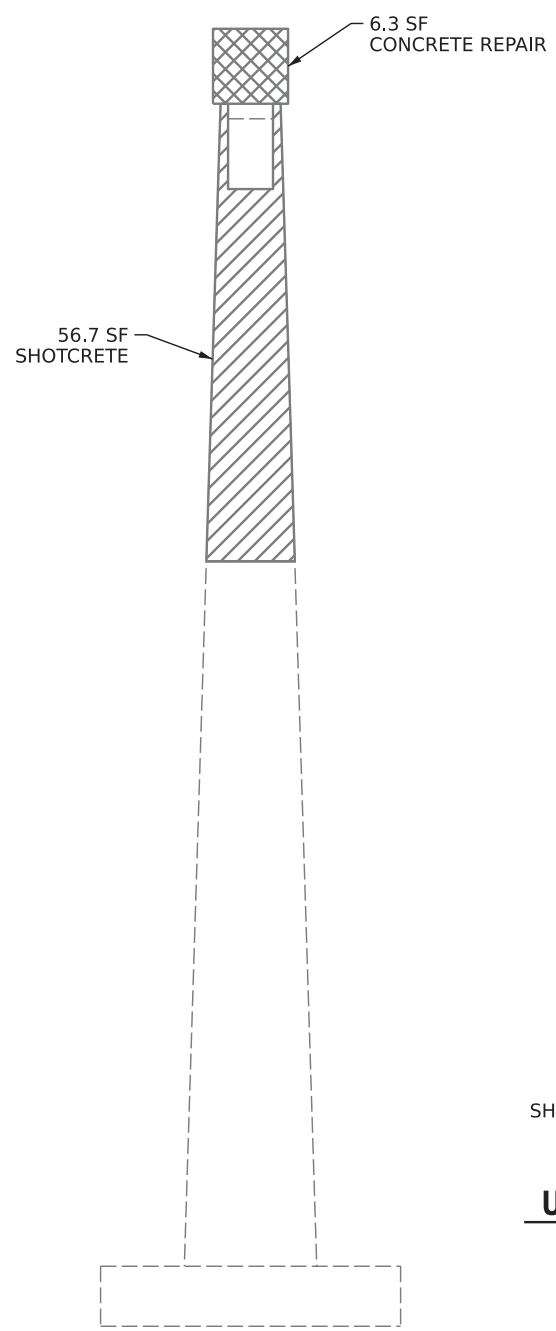
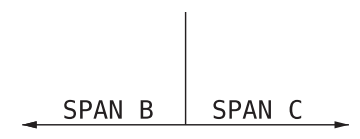


SPAN C
SPAN B

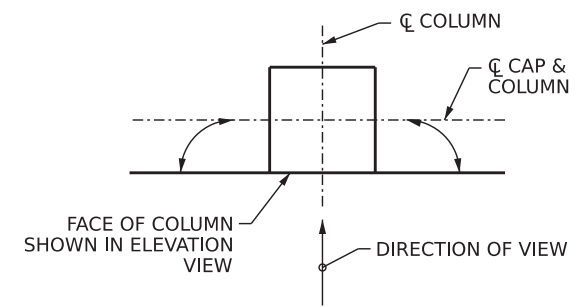
TOP OF CAP



ELEVATION



END VIEW



UNWRAPPED COLUMN FACE DETAIL

AS-BUILT REPAIR QUANTITY TABLE				
REPAIRS - BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	31.3	15.7		
COLUMN	183.6	91.6		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	13.0	7.5		
COLUMN	0	0		
STRUT	36.3	36.3		
EPOXY COATING			AREA SF	AREA SF
CAP			84.4	
STRUT			45.3	

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

NOTES

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

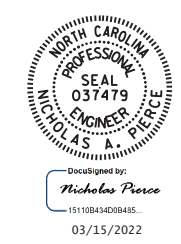
CONCRETE REPAIRS MAYBE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR "SHOTCRETE REPAIRS", SEE SPECIAL PROVISIONS.

- SHOTCRETE REPAIR AREA
- CONCRETE REPAIR AREA
- AREA PREVIOUSLY ACCOUNTED FOR ON ADJACENT FACE

PROJECT NO. **41665.14B**
MCDOWELL COUNTY
 BRIDGE NO. **580032**

SHEET 4 OF 14



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE REPAIRS
BENT 2
SPAN B FACE

REVISIONS						SHEET NO. S1-22
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 34
2			4			

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DRAWN BY : D.A. CANTRELL DATE : 1/2022
 CHECKED BY : N.A. PIERCE DATE : 01/2022
 DESIGN ENGINEER OF RECORD : N.A. PIERCE DATE : 01/2022

AS-BUILT REPAIR QUANTITY TABLE

REPAIRS - BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	99.3	152.3		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	18.2	9.1		
COLUMN	0	0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.




NOTES

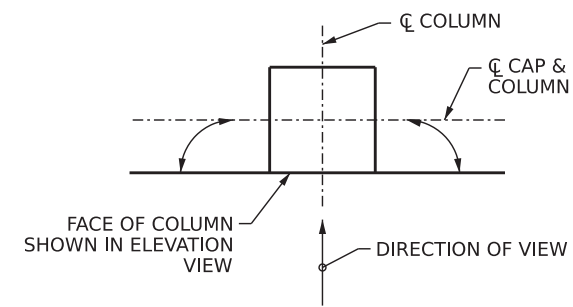
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FOR "SHOTCRETE REPAIRS", SEE SPECIAL PROVISIONS.

-  SHOTCRETE REPAIR AREA
-  CONCRETE REPAIR AREA
-  AREA PREVIOUSLY ACCOUNTED FOR ON ADJACENT FACE



PROJECT NO. **41665.14B**
MCDOWELL COUNTY
 BRIDGE NO. **580032**

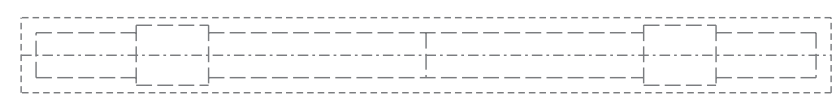
SHEET 5 OF 14



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE REPAIRS
BENT 2
SPAN C FACE

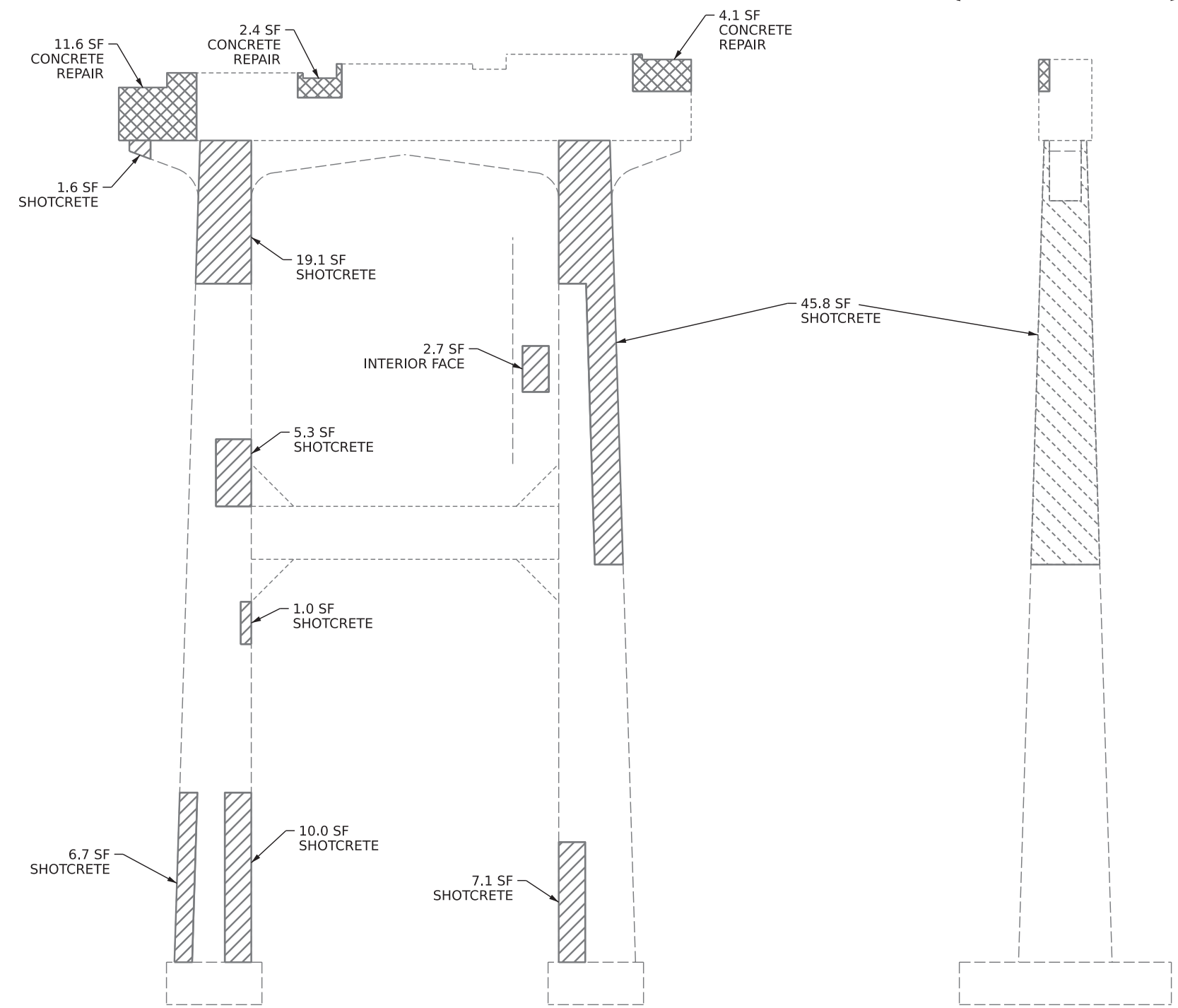
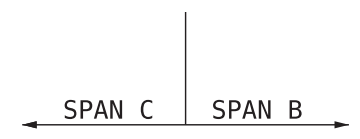
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			34

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



SPAN B
SPAN C

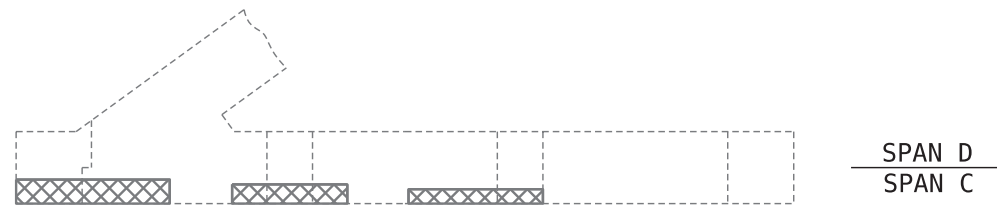
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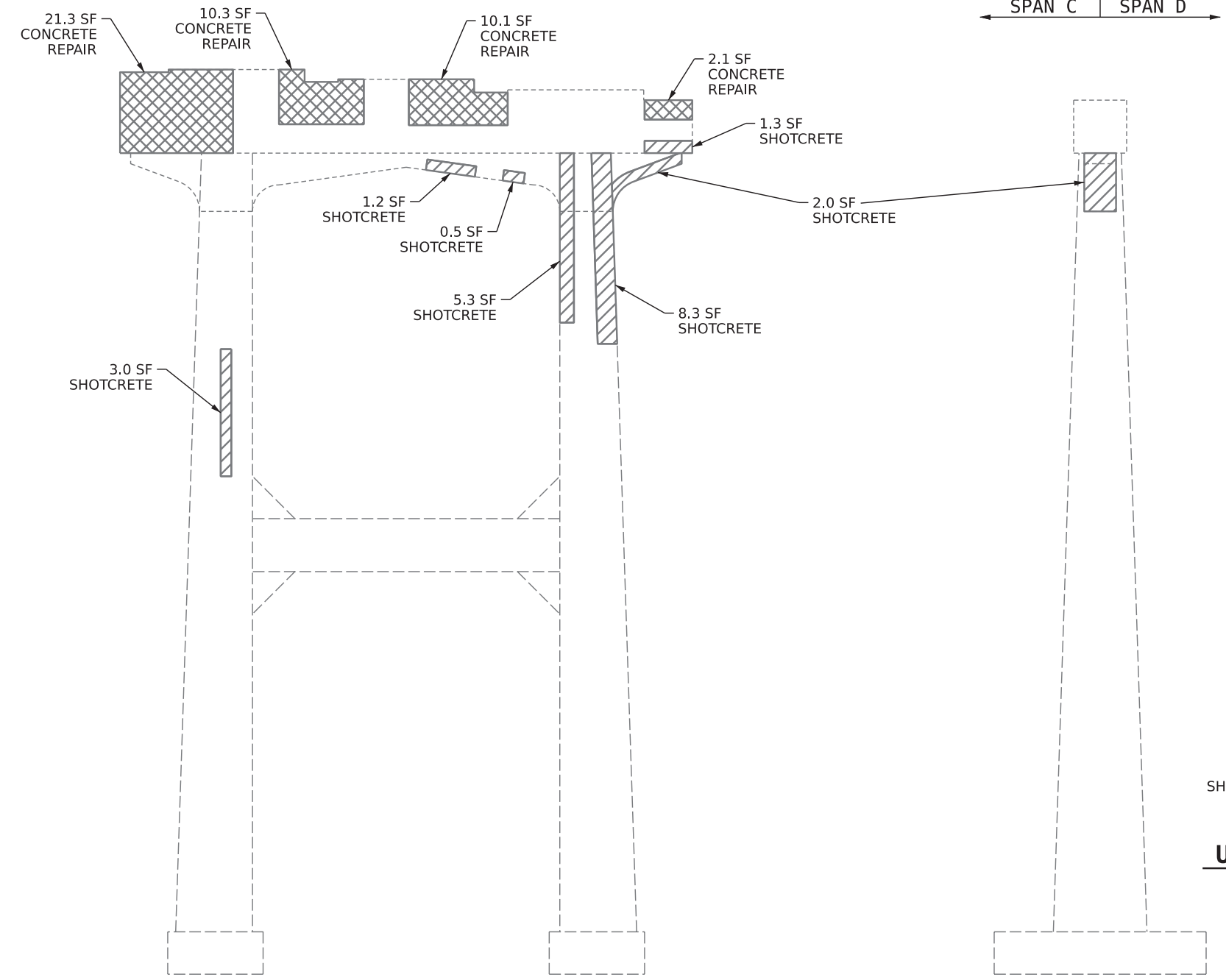
ELEVATION

END VIEW

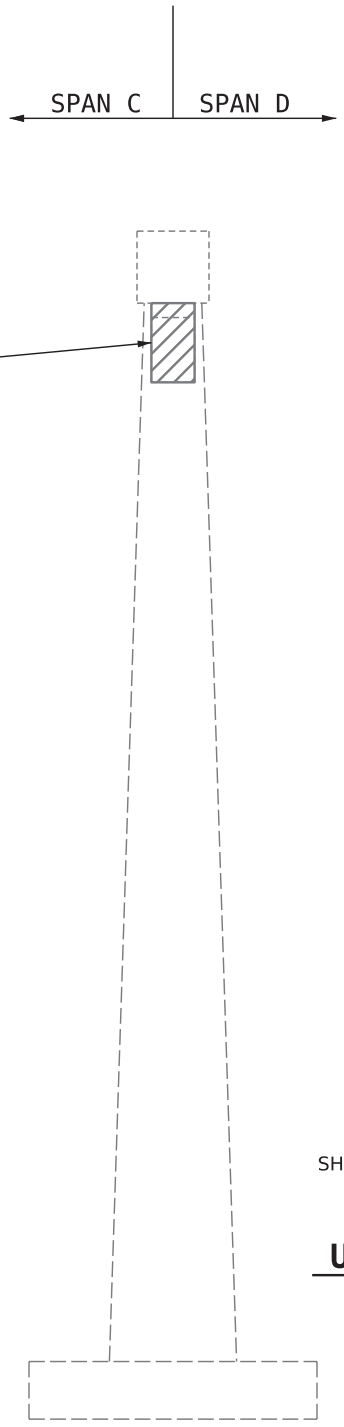
DRAWN BY: D.A. CANTRELL DATE: 1/2022
 CHECKED BY: N.A. PIERCE DATE: 01/2022
 DESIGN ENGINEER OF RECORD: N.A. PIERCE DATE: 01/2022



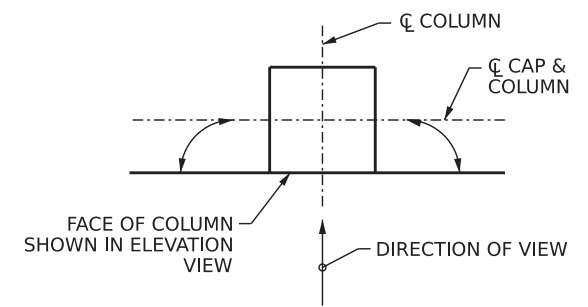
TOP OF CAP



ELEVATION



END VIEW



UNWRAPPED COLUMN FACE DETAIL

AS-BUILT REPAIR QUANTITY TABLE				
REPAIRS - BENT 3	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	5.0	2.5		
COLUMN	16.6	8.3		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	43.8	30.8		
COLUMN	0	0		
EPOXY COATING		AREA SF		AREA SF
CAP		84.4		
STRUT		45.3		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

NOTES

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

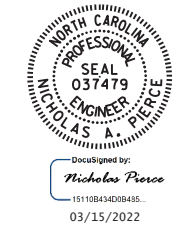
CONCRETE REPAIRS MAYBE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR "SHOTCRETE REPAIRS", SEE SPECIAL PROVISIONS.

- SHOTCRETE REPAIR AREA
- CONCRETE REPAIR AREA
- AREA PREVIOUSLY ACCOUNTED FOR ON ADJACENT FACE

PROJECT NO. **41665.14B**
MCDOWELL COUNTY
 BRIDGE NO. **580032**

SHEET 6 OF 14



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE REPAIRS
BENT 3
SPAN C FACE

REVISIONS						SHEET NO. S1-24 TOTAL SHEETS 34
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

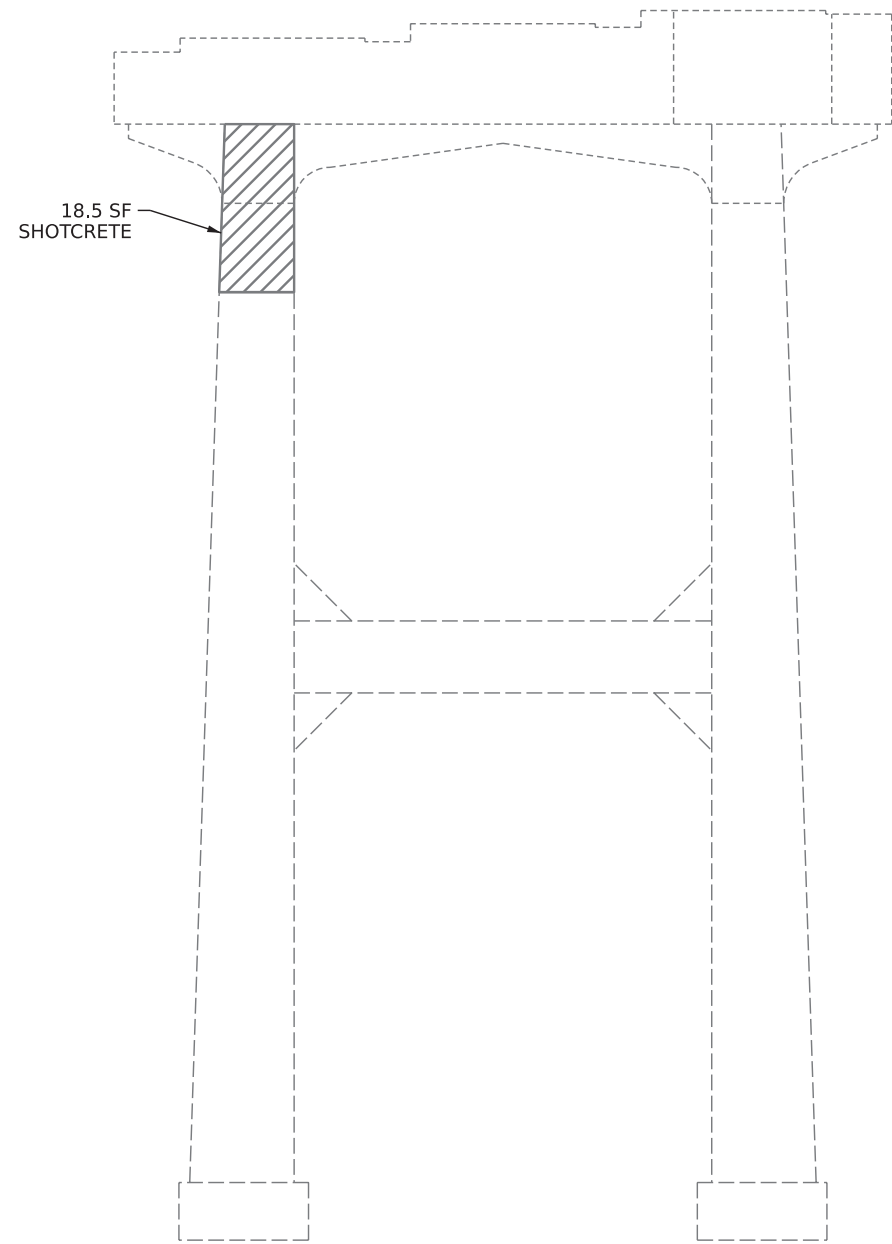
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DRAWN BY : **B.L. GREEN** DATE : **12/2021**
 CHECKED BY : **N.A. PIERCE** DATE : **01/2022**
 DESIGN ENGINEER OF RECORD : **N.A. PIERCE** DATE : **01/2022**

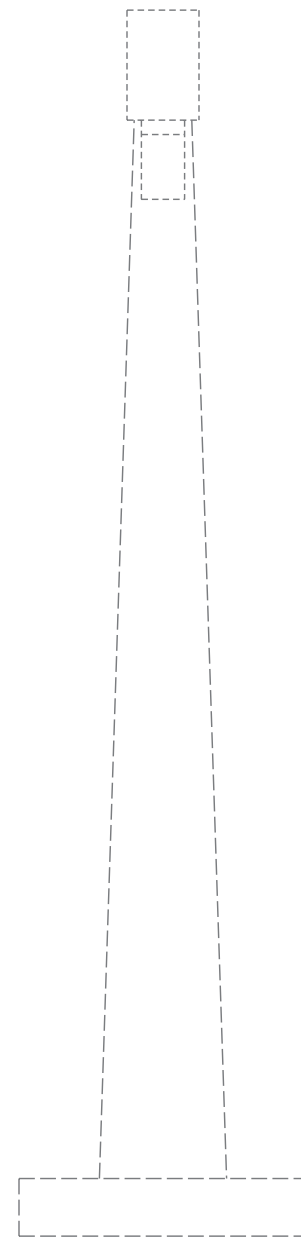


SPAN D
SPAN C

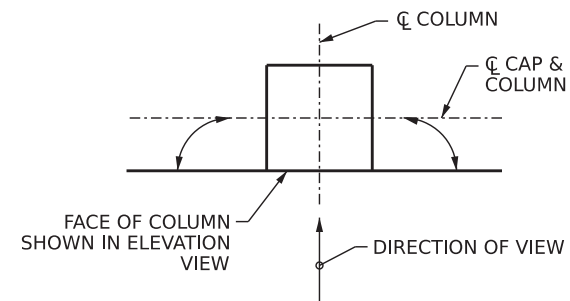
UNDERSIDE OF CAP



ELEVATION



END VIEW



UNWRAPPED COLUMN FACE DETAIL

AS-BUILT REPAIR QUANTITY TABLE

REPAIRS - BENT 3	QUANTITIES			
	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
SHOTCRETE REPAIRS				
CAP	0	0		
COLUMN	18.5	9.2		
CONCRETE REPAIRS				
CAP	0	0		
COLUMN	0	0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.




NOTES

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

CONCRETE REPAIRS MAYBE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR "SHOTCRETE REPAIRS", SEE SPECIAL PROVISIONS.

-  SHOTCRETE REPAIR AREA
-  CONCRETE REPAIR AREA
-  AREA PREVIOUSLY ACCOUNTED FOR ON ADJACENT FACE

PROJECT NO. **41665.14B**
MCDOWELL COUNTY
 BRIDGE NO. **580032**

SHEET 7 OF 14



DocuSigned by:
 Nicholas Pierce
 15110843ED0B45
 03/15/2022

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE REPAIRS
 BENT 3
 SPAN D FACE**

REVISIONS						SHEET NO. S1-25
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 34
2			4			

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DRAWN BY : B.L. GREEN DATE : 12/2021
 CHECKED BY : N.A. PIERCE DATE : 01/2022
 DESIGN ENGINEER OF RECORD : N.A. PIERCE DATE : 01/2022

AS-BUILT REPAIR QUANTITY TABLE

REPAIRS - BENT 4	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	7.7	3.8		
COLUMN	36.4	18.6		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	8.7	4.3		
COLUMN	0	0		
EPOXY COATING		AREA SF		AREA SF
CAP		120.6		
STRUT		54.2		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.




NOTES

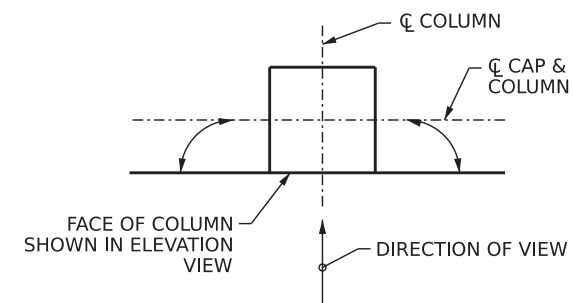
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CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

CONCRETE REPAIRS MAYBE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR "SHOTCRETE REPAIRS", SEE SPECIAL PROVISIONS.

-  SHOTCRETE REPAIR AREA
-  CONCRETE REPAIR AREA
-  AREA PREVIOUSLY ACCOUNTED FOR ON ADJACENT FACE



PROJECT NO. **41665.14B**
MCDOWELL COUNTY
 BRIDGE NO. **580032**

SHEET 8 OF 14

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

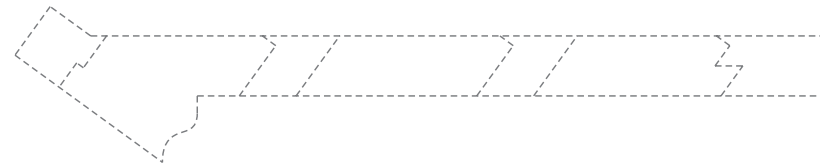
SUBSTRUCTURE REPAIRS
BENT 4
SPAN D FACE



DocuSigned by:
 Nicholas Pierce
 15110843400485.
 03/15/2022

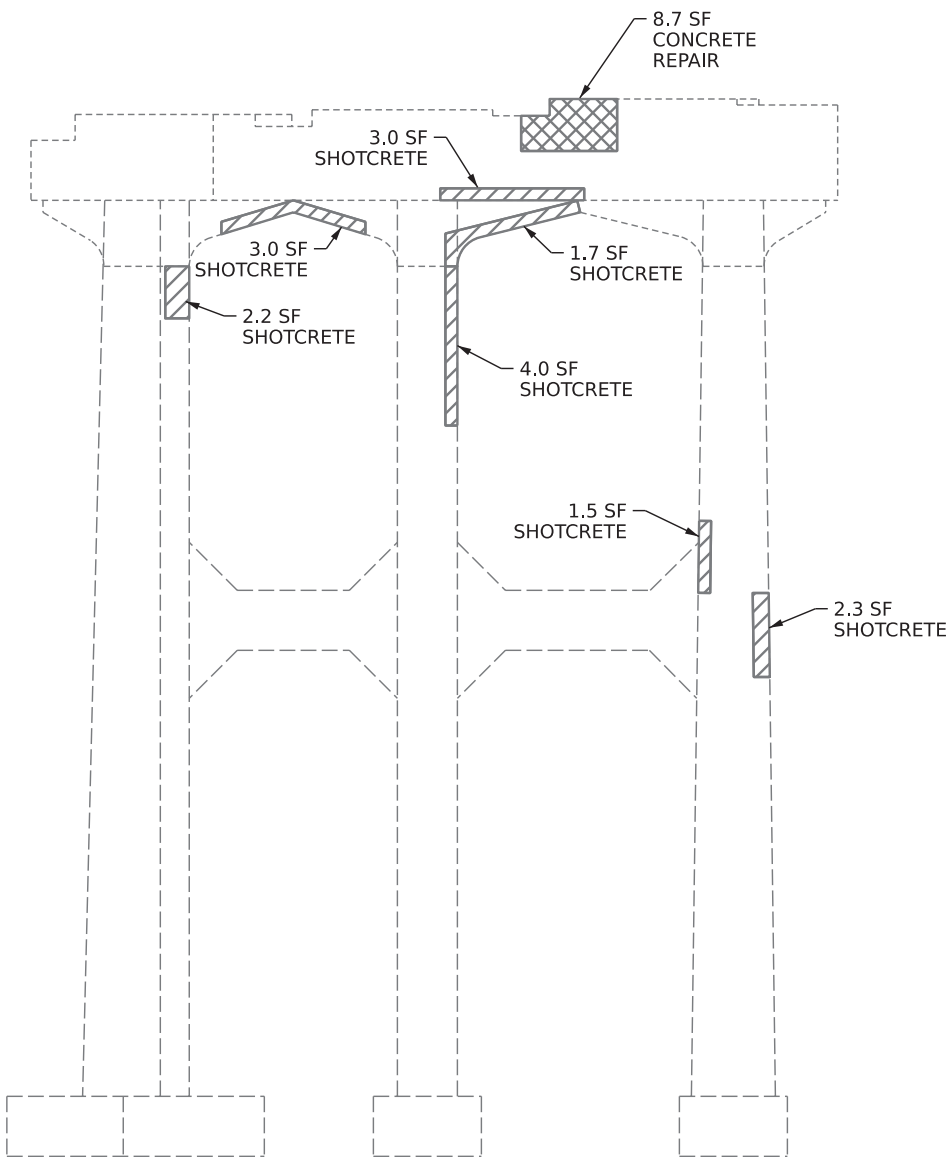
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			34

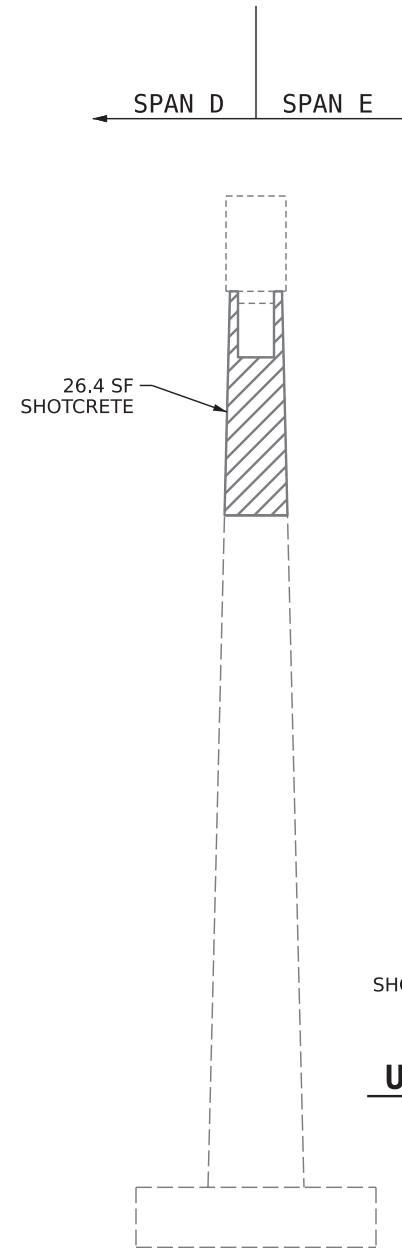


SPAN E
 SPAN D

TOP OF CAP



ELEVATION



END VIEW

DRAWN BY : B.L. GREEN DATE : 12/2021
 CHECKED BY : N.A. PIERCE DATE : 01/2022
 DESIGN ENGINEER OF RECORD : N.A. PIERCE DATE : 01/2022

AS-BUILT REPAIR QUANTITY TABLE

REPAIRS - BENT 4	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.4	0.2		
COLUMN	82.4	42.3		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	8.0	4.0		
COLUMN	0	0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.




NOTES

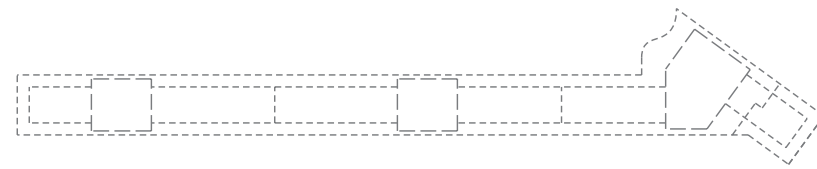
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CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

CONCRETE REPAIRS MAYBE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

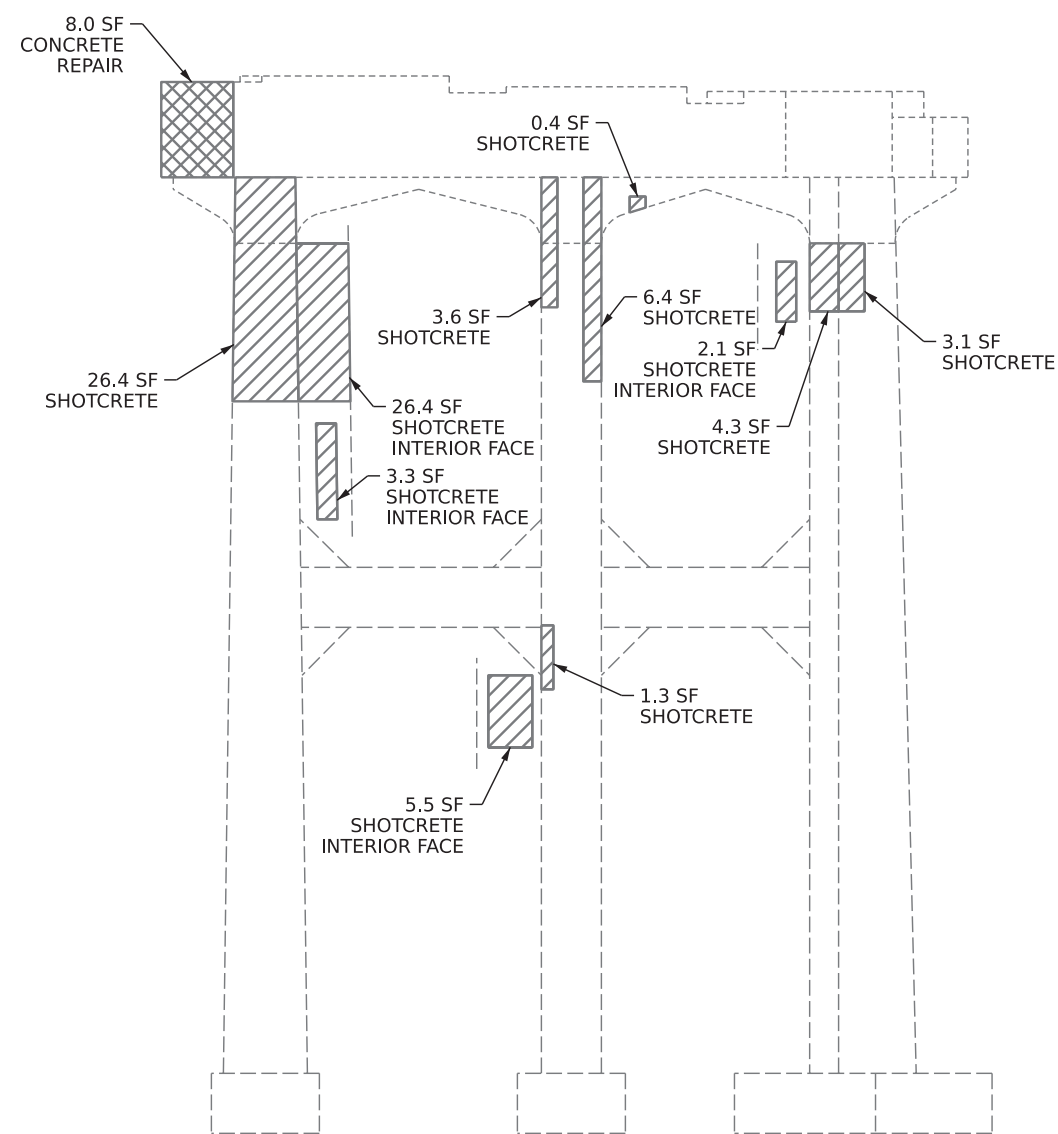
FOR "SHOTCRETE REPAIRS", SEE SPECIAL PROVISIONS.

-  SHOTCRETE REPAIR AREA
-  CONCRETE REPAIR AREA
-  AREA PREVIOUSLY ACCOUNTED FOR ON ADJACENT FACE

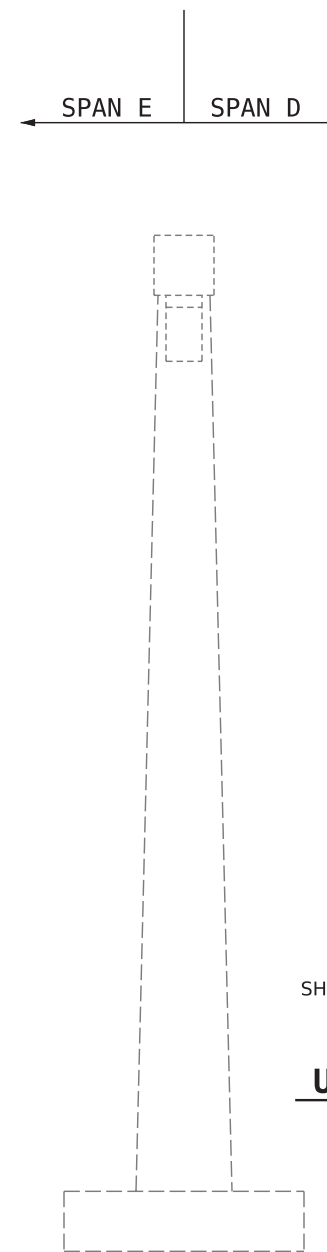


SPAN D
SPAN E

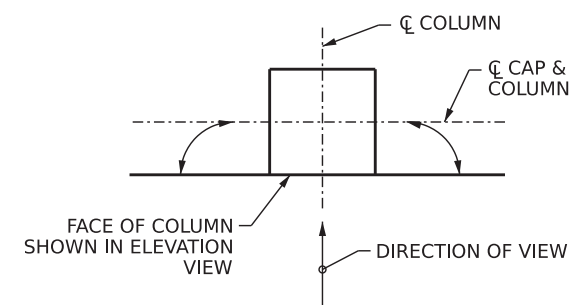
BOTTOM OF CAP



ELEVATION



END VIEW



UNWRAPPED COLUMN FACE DETAIL

PROJECT NO. **41665.14B**

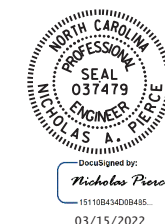
MCDOWELL COUNTY

BRIDGE NO. **580032**

SHEET 9 OF 14

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS
BENT 4
SPAN E FACE



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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S1-27 TOTAL SHEETS 34
2			4			

DRAWN BY : **B.L. GREEN** DATE : **12/2021**
 CHECKED BY : **N.A. PIERCE** DATE : **01/2022**
 DESIGN ENGINEER OF RECORD : **N.A. PIERCE** DATE : **01/2022**

AS-BUILT REPAIR QUANTITY TABLE

REPAIRS - BENT 5	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	28.8	14.4		
COLUMN	29.5	19.3		
STRUT	11.1	5.5		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	8.3	4.2		
COLUMN	0	0		
STRUT	3.2	1.6		
EPOXY COATING		AREA SF		AREA SF
CAP		107.8		
STRUT		121.9		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.




NOTES

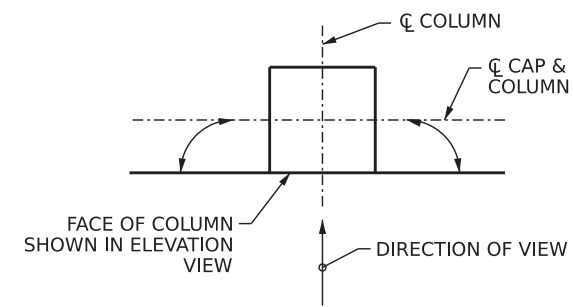
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CONCRETE REPAIRS MAYBE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR "SHOTCRETE REPAIRS", SEE SPECIAL PROVISIONS.

-  SHOTCRETE REPAIR AREA
-  CONCRETE REPAIR AREA
-  AREA PREVIOUSLY ACCOUNTED FOR ON ADJACENT FACE

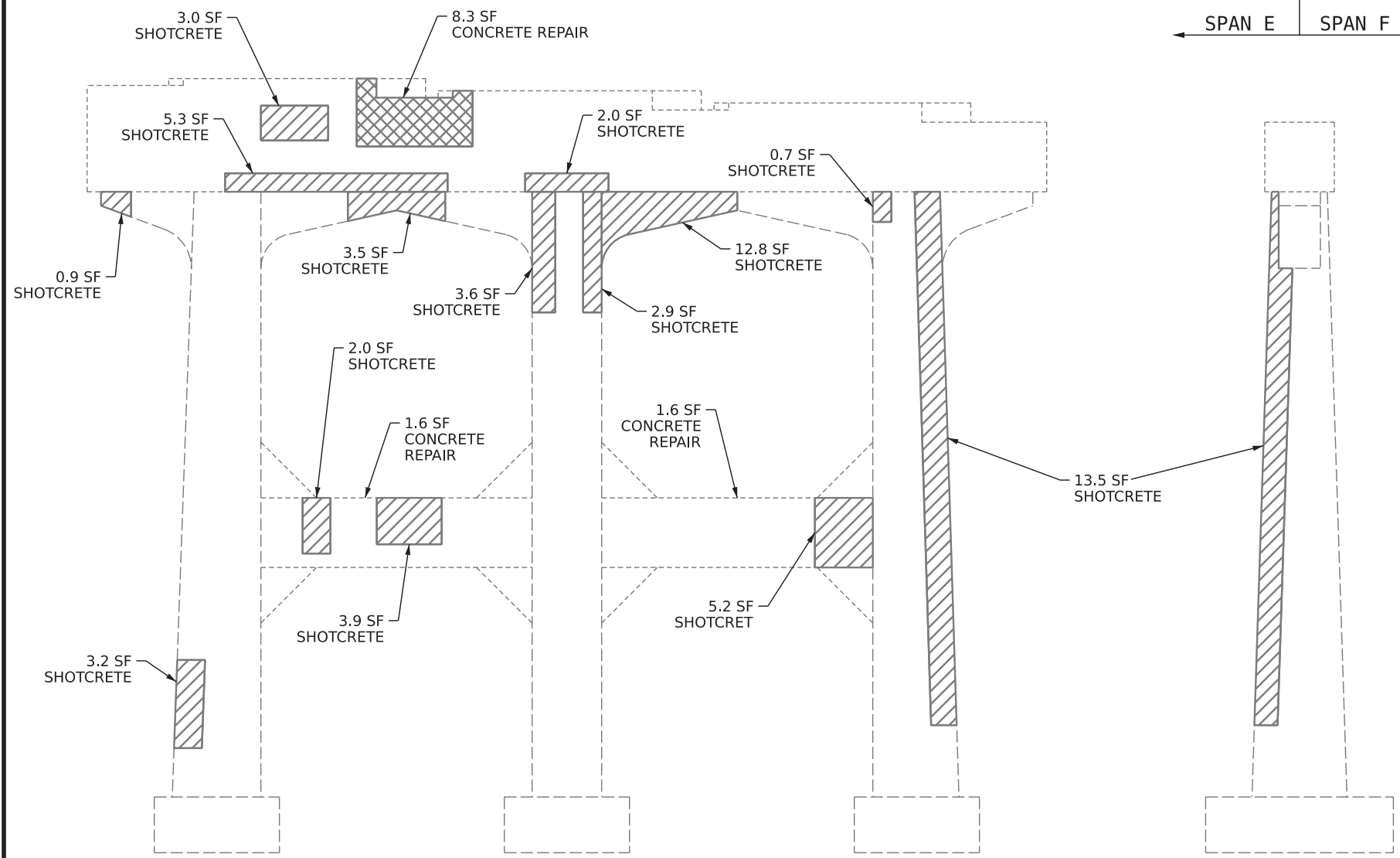


UNWRAPPED COLUMN FACE DETAIL



SPAN F
SPAN E

TOP OF CAP



ELEVATION

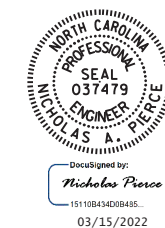
END VIEW

PROJECT NO. **41665.14B**
MCDOWELL COUNTY
 BRIDGE NO. **580032**

SHEET 10 OF 14

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE REPAIRS BENT 5 SPAN E FACE



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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			34

DRAWN BY : D.A. CANTRELL DATE : 1/2022
 CHECKED BY : N.A. PIERCE DATE : 01/2022
 DESIGN ENGINEER OF RECORD : N.A. PIERCE DATE : 01/2022

AS-BUILT REPAIR QUANTITY TABLE

REPAIRS - BENT 5	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	40.1	20.1		
COLUMN	20.2	10.4		
STRUT	4.0	2.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	0	0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.




NOTES

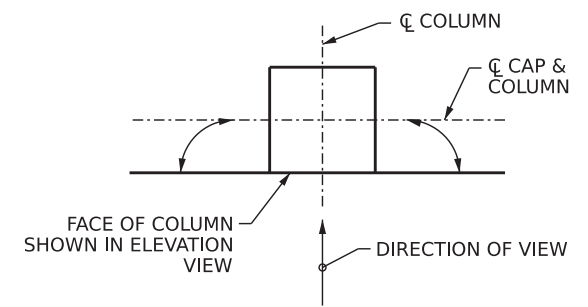
REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

CONCRETE REPAIRS MAYBE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR "SHOTCRETE REPAIRS", SEE SPECIAL PROVISIONS.

-  SHOTCRETE REPAIR AREA
-  CONCRETE REPAIR AREA
-  AREA PREVIOUSLY ACCOUNTED FOR ON ADJACENT FACE

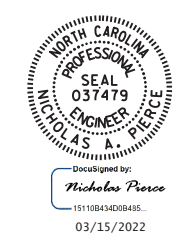


PROJECT NO. **41665.14B**
MCDOWELL COUNTY
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SHEET 11 OF 14

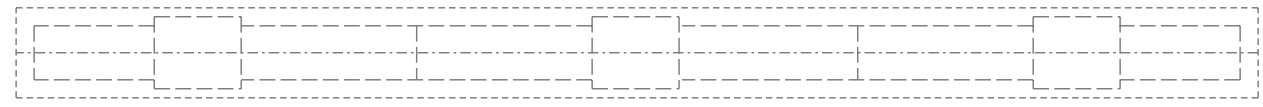
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE REPAIRS
BENT 5
SPAN F FACE



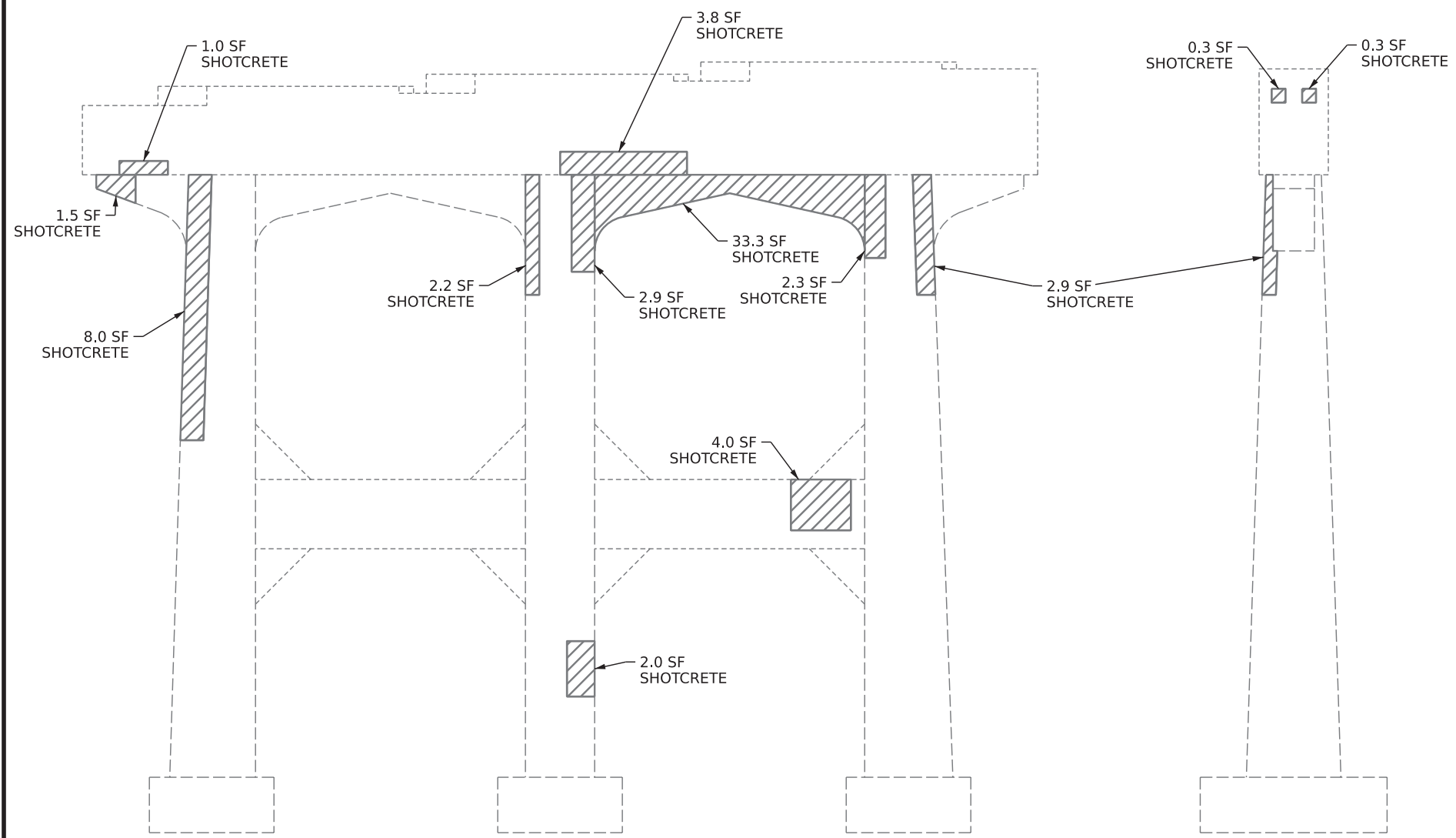
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BOTTOM OF CAP

SPAN E
SPAN F



ELEVATION

END VIEW

DRAWN BY : D.A. CANTRELL DATE : 1/2022
 CHECKED BY : N.A. PIERCE DATE : 01/2022
 DESIGN ENGINEER OF RECORD : N.A. PIERCE DATE : 01/2022

AS-BUILT REPAIR QUANTITY TABLE

REPAIRS - BENT 6	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	51.6	42.8		
COLUMN	25.8	21.5		
STRUT	17.8	14.8		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	4.7	2.4		
COLUMN	0	0		
EPOXY COATING		AREA SF		AREA SF
CAP		86.3		
STRUT		39.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.




NOTES

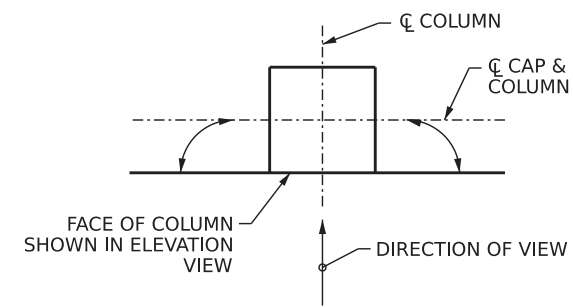
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CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

CONCRETE REPAIRS MAYBE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR "SHOTCRETE REPAIRS", SEE SPECIAL PROVISIONS.

-  SHOTCRETE REPAIR AREA
-  CONCRETE REPAIR AREA
-  AREA PREVIOUSLY ACCOUNTED FOR ON ADJACENT FACE

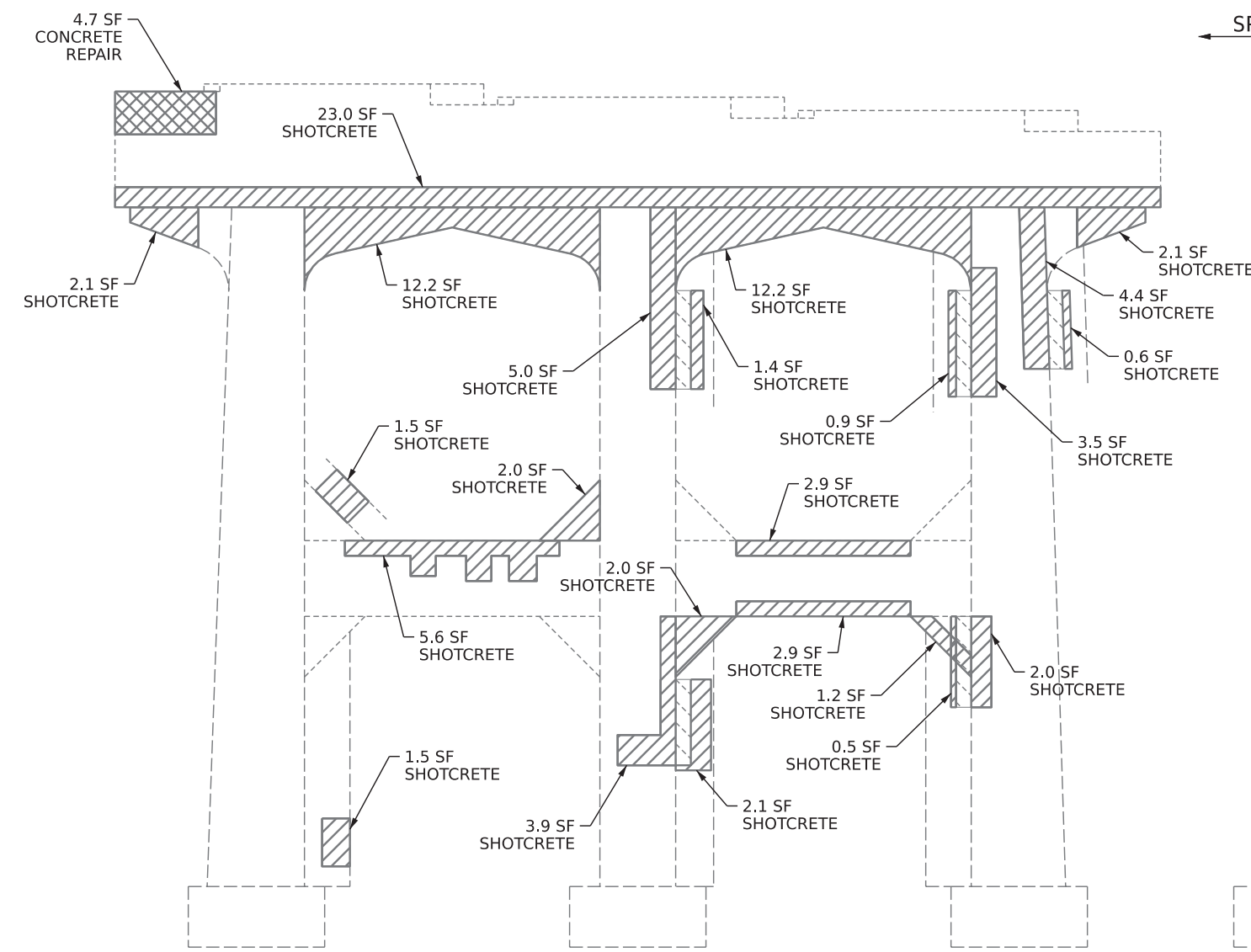


UNWRAPPED COLUMN FACE DETAIL

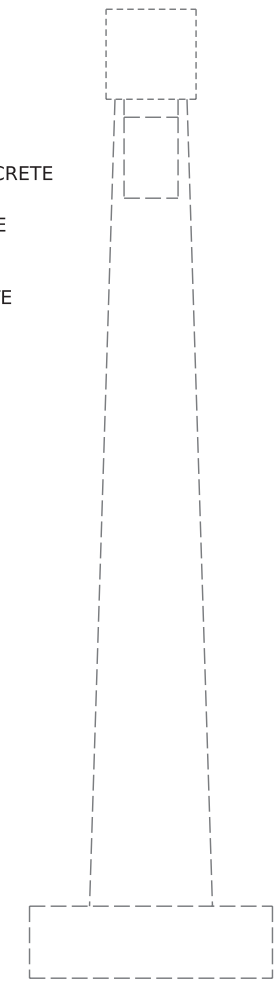


SPAN G
SPAN F

TOP OF CAP

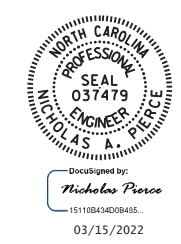


ELEVATION



END VIEW

PROJECT NO. **41665.14B**
MCDOWELL COUNTY
 BRIDGE NO. **580032**
 SHEET 12 OF 14



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE REPAIRS
BENT 6
SPAN F FACE

REVISIONS						SHEET NO. S1-30 TOTAL SHEETS 34
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

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DRAWN BY : **B. L. GREEN** DATE : **2/2022**
 CHECKED BY : **N.A. PIERCE** DATE : **01/2022**
 DESIGN ENGINEER OF RECORD : **N.A. PIERCE** DATE : **01/2022**

3/15/2022 S:\DEV\Squad_D\Misc Projects\580032.CriticalFind Repair\401.059.SMU.SBR.B06F_S1-30.580032.dgn naperce

AS-BUILT REPAIR QUANTITY TABLE

REPAIRS - BENT 6	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	17.3	8.7		
COLUMN	40.1	20.1		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	0	0		




VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

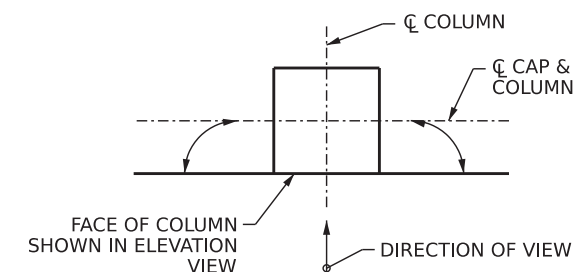
NOTES

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

CONCRETE REPAIRS MAYBE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR "SHOTCRETE REPAIRS", SEE SPECIAL PROVISIONS.

-  SHOTCRETE REPAIR AREA
-  CONCRETE REPAIR AREA
-  AREA PREVIOUSLY ACCOUNTED FOR ON ADJACENT FACE



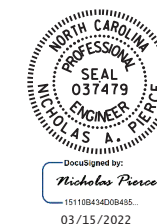
UNWRAPPED COLUMN FACE DETAIL

PROJECT NO. **41665.14B**
MCDOWELL COUNTY
 BRIDGE NO. **580032**

SHEET 13 OF 14

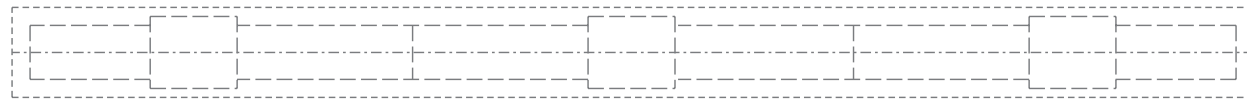
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE REPAIRS
 BENT 6
 SPAN G FACE**



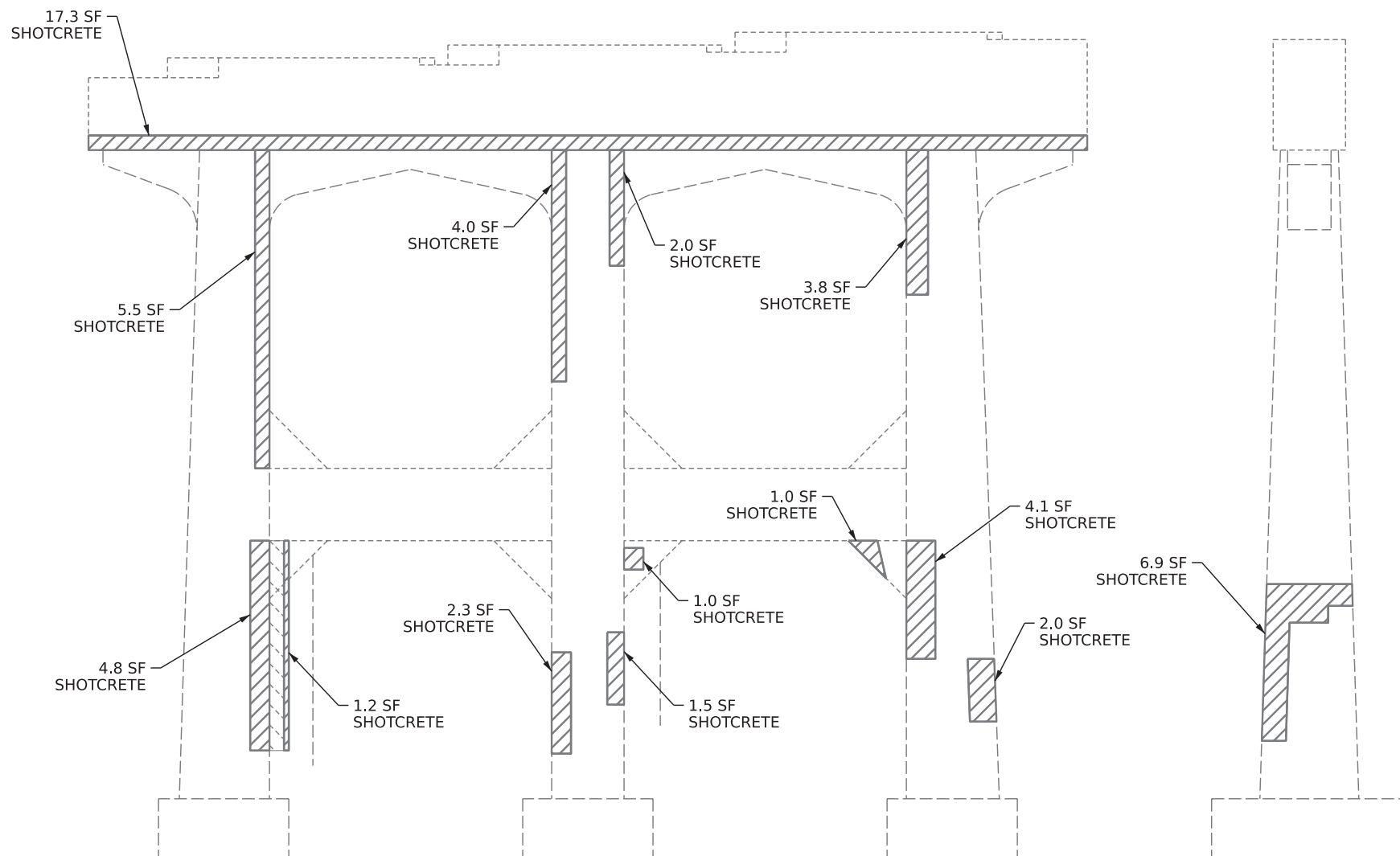
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-31
1			3			TOTAL SHEETS
2			4			34



BOTTOM OF CAP

SPAN F
 SPAN G



ELEVATION

END VIEW

DRAWN BY : **B. L. GREEN** DATE : **2/2022**
 CHECKED BY : **N.A. PIERCE** DATE : **01/2022**
 DESIGN ENGINEER OF RECORD : **N.A. PIERCE** DATE : **01/2022**



TOP OF CAP



ELEVATION

AS-BUILT REPAIR QUANTITY TABLE

REPAIRS - ABUTMENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	6.5	3.3		
CURTAIN WALL	0	0		
ABUTMENT WALL	65.0	32.5		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
CURTAIN WALL	0	0		
WINGWALL				
EPOXY RESIN INJECTION		LINEAR FT		LINEAR FT
CAP		0		
CURTAIN WALL		0		
WINGWALL				
EPOXY COATING		AREA SF		AREA SF
CAP		42.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

NOTES

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

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CONCRETE REPAIRS MAYBE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR "SHOTCRETE REPAIRS", SEE SPECIAL PROVISIONS.

- SHOTCRETE REPAIR AREA
- CONCRETE REPAIR AREA
- AREA PREVIOUSLY ACCOUNTED FOR ON ADJACENT FACE

PROJECT NO. **41665.14B**
MCDOWELL COUNTY
 BRIDGE NO. **580032**

SHEET 14 OF 14



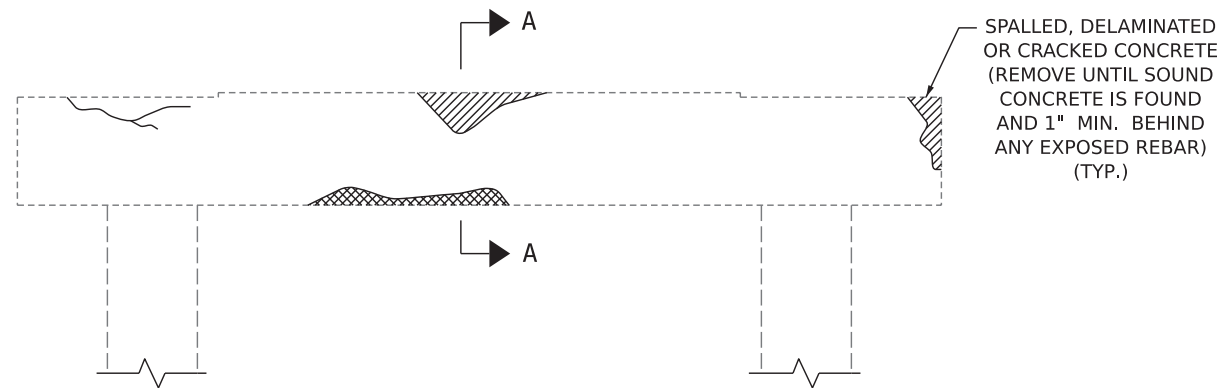
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE REPAIRS
 ABUTMENT 2**

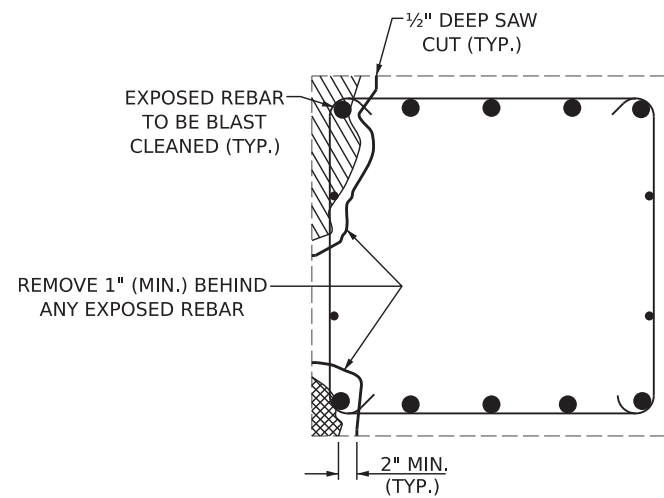
DRAWN BY : D.A. CANTRELL DATE : 1/2022
 CHECKED BY : N.A. PIERCE DATE : 01/2022
 DESIGN ENGINEER OF RECORD: N.A. PIERCE DATE : 01/2022

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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 34
2			4			

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BENT CAP REPAIRS



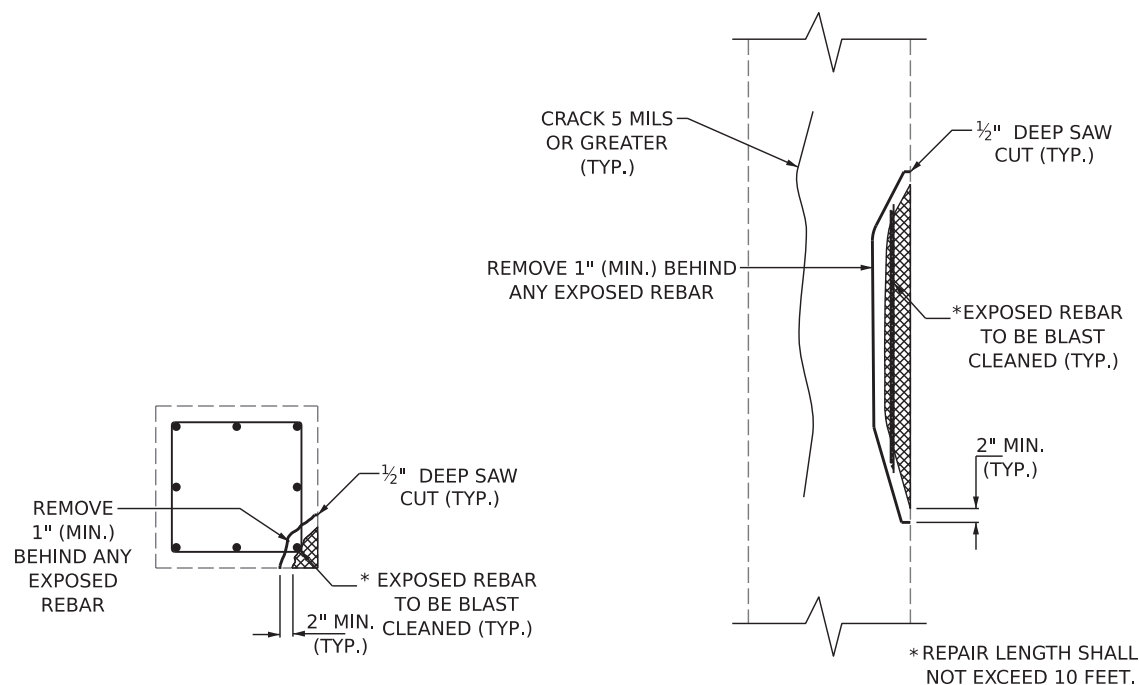
SECTION A-A

CAP REPAIR

SPLICE LENGTH TABLE	
BAR SIZE	MIN. SPLICE LENGTH
#4	2'-4"
#5	2'-9"
#6	4'-0"
#7	5'-3"
#8	6'-9"
#9	8'-6"
#10	10'-11"
#11	13'-4"

REPAIR KEY

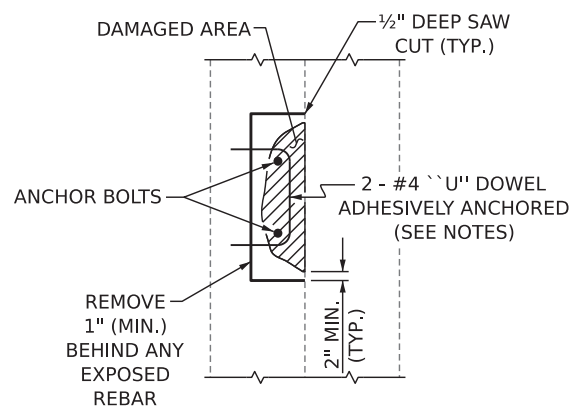
- CONCRETE REPAIR AREA (FORM AND POUR)
- SHOTCRETE REPAIR AREA
- EPOXY RESIN INJECTION (ERI)



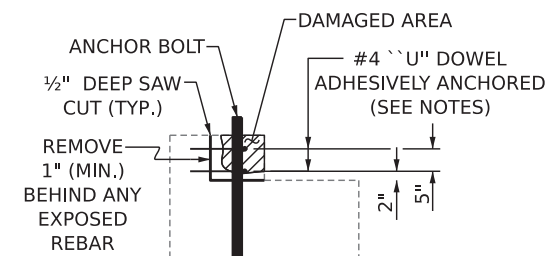
PLAN OF COLUMN

ELEVATION OF COLUMN

COLUMN REPAIR



PLAN



ELEVATION

PEDESTAL WALL REPAIR

NOTES

TYPICAL BENT CAP REPAIRS ARE SHOWN. REPAIR DETAILS SIMILAR FOR END BENT CAPS AND STRUTS.

THE METHOD USED TO DELINEATE THE AREAS OF UNSOUND CONCRETE TO BE REPAIRED SHALL NOT PERMANENTLY MARK THE CONCRETE, LEAVE ANY RESIDUE AFTER REMOVAL OR REQUIRE HARSH CHEMICALS TO REMOVE.

THE CONTRACTOR SHALL REMOVE THE DETERIORATED CONCRETE IN ACCORDANCE WITH THE GUIDELINES SET IN THESE NOTES, IN THE SPECIAL PROVISIONS AND THE STANDARD SPECIFICATIONS.

REMOVE UNSOUND CONCRETE TO THE EXTENT NECESSARY, MINIMUM OF 1" BEHIND REBAR AND MINIMUM OF 2" CLEARANCE TO SAWCUT.

NO MORE THAN ONE-THIRD OF THE CAP OR COLUMN CROSS SECTIONAL AREA SHALL BE REMOVED AT ONE TIME, SHOULD IT BECOME NECESSARY TO REMOVE MORE THAN 30% OF A CAP OR COLUMN CROSS SECTIONAL AREA, NOTIFY THE ENGINEER PRIOR TO PROCEEDING.

SIMULTANEOUS REMOVAL OF UNSOUND CONCRETE MAY BE PERMITTED ON MORE THAN ONE FACE OF A CAP AND/OR COLUMN, IF THE AREAS OF REMOVAL ARE NOT ADJACENT TO OR DIRECTLY OPPOSITE ONE ANOTHER. IF REMOVAL EXTENDS MORE THAN 1 1/2" BEHIND THE MAIN REINFORCING BARS, NOTIFY THE ENGINEER PRIOR TO PROCEEDING.

REINFORCING STEEL WHICH IS DETERMINED BY THE ENGINEER TO BE REPLACED, SHALL BE REMOVED TO A POINT WHERE IT IS SOUND. THE REPAIR AREA SHALL EXTEND A SUFFICIENT DISTANCE BEYOND THIS POINT TO DEVELOP A SPLICE LENGTH SPECIFIED IN THE TABLE ON THIS SHEET.

THE #4 "U" DOWELS ARE REQUIRED ONLY AROUND THE ANCHOR BOLTS. THE EXISTING REINFORCING STEEL IN THE PEDESTAL WALL SHALL BE CLEANED, STRAIGHTENED AND REMAIN IN PLACE.

FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.

COAT ALL REPAIR SURFACE AREAS ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY PROTECTIVE COATING, OVERLAPPING THE REPAIR AREA BY A MINIMUM OF 3" ON ALL POSSIBLE SIDES.

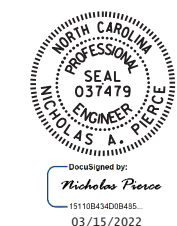
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION (ERI), SEE SPECIAL PROVISIONS.

PROJECT NO. **41665.14B**
MCDOWELL COUNTY
 BRIDGE NO. **580032**



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
**TYPICAL
 CAP AND COLUMN
 REPAIR DETAILS**

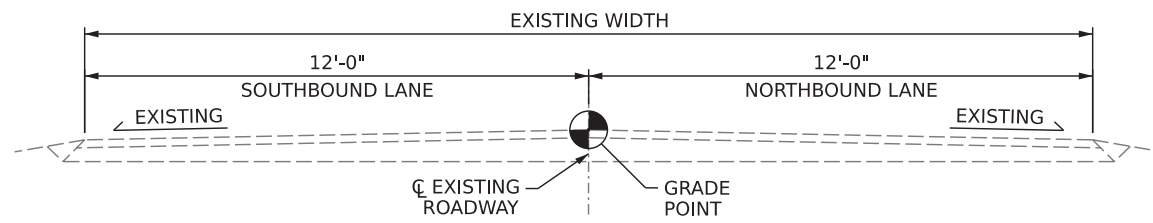
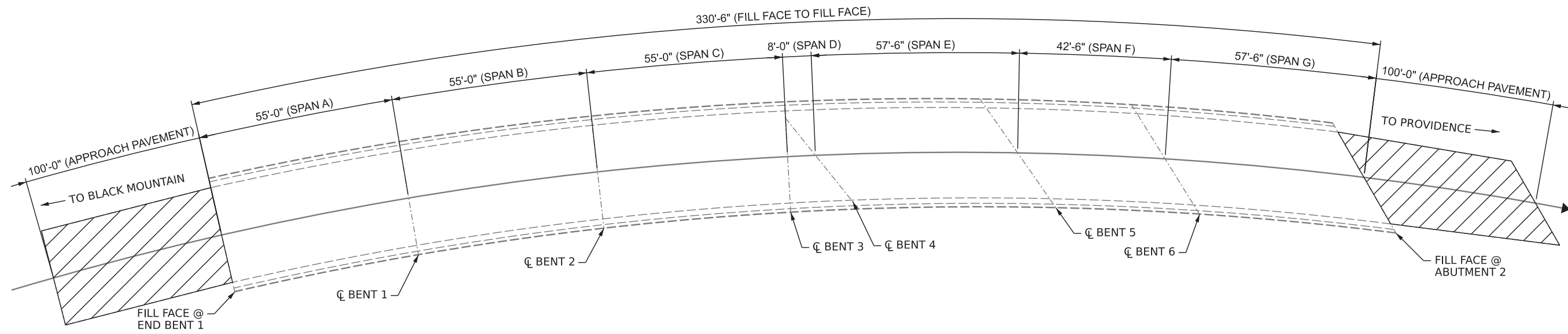
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NO.	BY:	DATE:	NO.	BY:	DATE:	S1-33
1			3			TOTAL SHEETS
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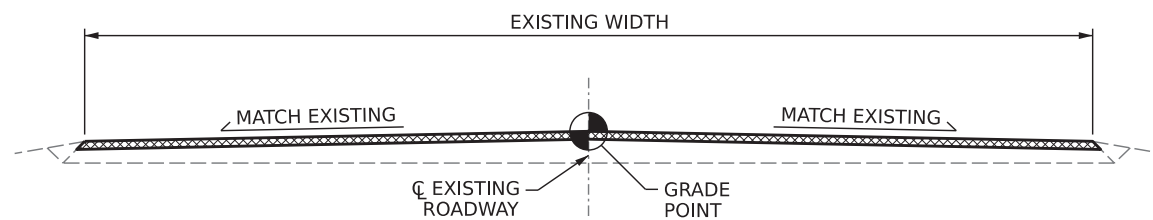
DRAWN BY : N.A. PIERCE DATE : 12/2021
 CHECKED BY : D.A. CANTRELL DATE : 01/2022
 DESIGN ENGINEER OF RECORD : N.A. PIERCE DATE : 01/2022

NOTES

INCIDENTAL MILLING - EXISTING ASPHALT ON APPROACH PAVEMENT TO BE MILLED TO ACHIEVE SMOOTH TRANSITION WITH BRIDGE DECK WHICH WILL HAVE (~4"±) REMOVED.

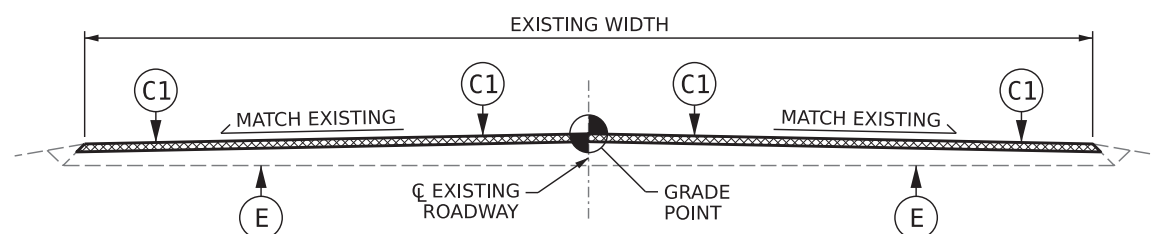


EXISTING ROADWAY SECTION



TYPICAL ROADWAY MILLING SECTION

(MILL TO 1 1/2" DEPTH)



PROPOSED ROADWAY SECTION

SUMMARY OF QUANTITIES		
	ESTIMATE	ACTUAL
INCIDENTAL MILLING	667.0 SQ.YDS.	
ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B	60.0 TONS	
ASPHALT BINDER FOR PLANT MIX	5.0 TONS	

C1	PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1 1/2" IN DEPTH OR GREATER THAN 2" IN DEPTH.
E	EXISTING PAVEMENT

PROJECT NO. **41665.14B**
MCDOWELL COUNTY
 BRIDGE NO. **580032**



DocuSigned by:
Nicholas Pierce
 151108434000435
 03/15/2022

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

INCIDENTAL MILLING AND TYPICAL ROADWAY SECTIONS

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S1-34
2			4			TOTAL SHEETS 34

DRAWN BY : D.A. CANTRELL DATE : 01/2022
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